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A GUIDE TO BETTER GARDENS

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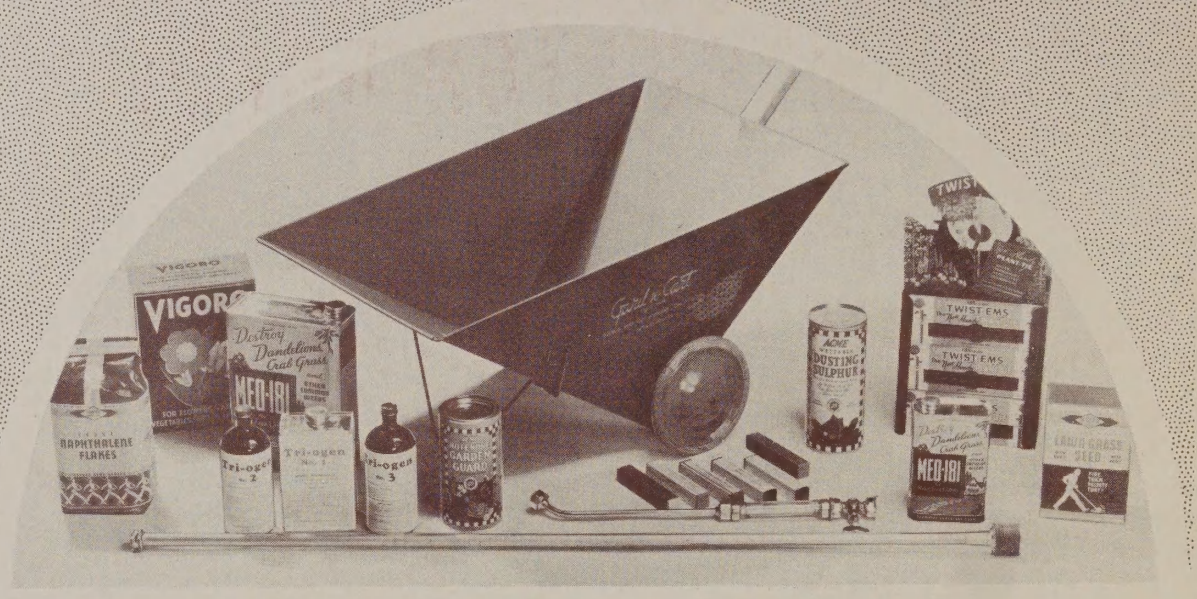
PORTLAND SEED COMPANY

GENERAL OFFICE, 109 S.E. ALDER

PORTLAND, OREGON



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A GUIDE TO BETTER GARDENS

SOIL AND ITS PREPARATION

SOIL is the foundation of all growing plant life, therefore, to be assured of the utmost success in gardening it is necessary to first properly prepare the soil. It is a storehouse for the food and water which are so necessary to plant life. In addition, plants obtain some air from the soil. The soil also modifies heat relationship to a very marked extent. Cultural practices are also largely concerned with regulating conditions in the soil.

Most of the common plants have special soil preferences, that is, they do best in soils possessing certain physical properties, with a majority of plants these conditions are most satisfactory in loam soils, however, plants as a whole are able to adapt themselves to conditions other than those which are most desirable. They will grow in soils which may be either lighter or heavier than the loam.

For practical purposes it is possible to divide the soils into three main groups—very light soils, medium soils and those which are very heavy. The first group is represented by sandy soil, the second group by loam and the third group by clay soils.

Sandy soils allow considerable freedom of movement to the air and water and permit the destruction of organic matter which may be present in it. They lack body and plants growing upon them are apt to suffer under extreme weather conditions. These soils are difficult to work because they may blow badly.

Clay soils are heavy, that is, they do not permit water and air to move freely enough through them to encourage the best growth of plants. They easily become filled with too much water and plant roots may find stagnant air conditions in them. Clay soils are difficult to work, if they contain a little too much moisture they become very sticky, while if they are too dry they become hard and cloddy.

Loam soils represent the ideal condition for best plant growth. Their physical properties represent a medium between those of very sandy soils and extreme clays. They are not so loose and open as to permit excessive movement of air and water nor are they dense enough to prevent sufficient water movement and proper ventilation.

Very heavy clays can be greatly improved by the addition of either a lighter soil, sand or peat moss. The latter is more desirable as it will only work down approximately 6 inches unless spaded in further and then remain for an indefinite period. If sand or light soil is used it will be necessary to repeat this every few years as excessive moisture will eventually wash it on through to a depth that will be of little benefit to plant life. The ideal solution for heavy clay soil is a combination of sand and peat moss. The sand will work through and afford drainage while the peat moss will remain keeping the heavy soil in a loose condition.

The improvement of sandy soils may be brought about by the addition of a heavy clay material or with peat moss. If it is possible to improve this light soil before planting it is advisable to work in approximately an inch and a half of peat moss and clay to a depth of five inches. This combination should be thoroughly mixed before planting.

Humus or organic matter is of importance in maintaining a soil in good physical condition. Materials commonly known as humus consist of declayed remains of plants and animals. Proper feeding of plants is the most satisfactory method of increasing the humus content of the soil. Both the top and root systems of plants grow much larger when they are properly fed. A part of the root system dies each year thus incorporating humus in the soil where it is of great value. This method eliminates the objectionable feature connected with use of manure. Moreover it is the only way in which appreciable quantities of organic matter can be incorporated at any depth in the lawn soil.

The humus content of the soil can also be increased by the addition of large quantities of compost material if such materials are available, or by the addition of large quantities of peat moss. In the case of the compost material it should be thoroughly worked into the soil.

Material such as bone meal, which form but little humus, are of practically no value for the purpose of bettering soil conditions.

Manures should not be used on the lawn or in any other location where it is difficult to eradicate weeds since nearly all manures contain weed seed in large numbers.

Soil reactions can be classified into three general groups—Acid, Alkaline and Neutral. Acid soils oftimes called sour soils occur very widely throughout humid regions. Alkaline soils on the other hand are general in arid sections. Most of the plants grown about the home prefer a soil which is neither acid nor alkaline, such a condition is recognized as neutral.

If the soil is slightly alkaline or slightly acid it will be satisfactory for the growth of most plants. If medium to strongly acid the majority of plants will respond to the addition of sufficient Limestone or Hydrated Lime which will bring the soil up to a slightly acid or neutral condition. This is not true in case weed competition is a factor as it is in the lawn. Lime should not be used on the lawn or on acid-loving plants.

Alkaline conditions seldom exist in humid soils. Alkalinity is due to the presence of an excess of soluble salts in the soil and generally occurs under arid conditions. In humid regions Alkaline soils may be produced through the addition of too much hydrated or quick lime and it may at times be desirable to reduce the degree of this alkalinity. Aluminum Sulphate is the most efficient material for making a soil more acid. Broadcast this material evenly over the area at the rate of 2 pounds per 100 square feet and soak it well into the soil. It may be necessary to make several applications to obtain the degree of acidity desired. Care should be taken not to make the soil too acid. Acid compost material such as that made from oak leaves may be used if available. Such material acidifies soil very slowly.

The final and most important requisite of a good soil is the proper amount of well balanced plant food. This is best done by the use of a good complete commercial fertilizer to be applied at the approximate rate of 4 pounds per 100 square feet.

A GUIDE TO BETTER LAWNS

EVERYONE desires a thick, velvety lawn and while many do not succeed in getting just this, it is not a difficult task if thoroughness is the keynote in early preparation. In planning and making a lawn keep in mind that it is a long time proposition and that a good foundation (including drainage, soil texture and food supply) is essential in providing an adequate foundation for grass plants. Many times this calls for artificial drainage, thorough preparation of the soil and ample supply of organic matter, grading which is artistically effective as well as practical from the point of view of upkeep and the use of a good seed mixture and plenty of it.

SOIL PREPARATION

When the soil is already good and drainage conditions are satisfactory, preparation need not be deeper than six inches. If the soil is heavy and inclined to stay wet, it may be necessary to lay 4-inch drain tile or cinder and sand base about 18 to 24 inches below the finished surface. Heavy soils may be lightened by incorporating sand or some form of humus such as peat moss (a bale to 600 square feet worked into the upper 4 inches of soil). On the other hand, a light sandy soil is also improved and given more body by the addition of humus at the same rate.

Natural manures are not desirable in making a new lawn because they are likely to contain many weed seeds which may continue to germinate over several years. A "balanced" commercial fertilizer, such as 4-12-4 formula (that means, containing 4% Nitrogen, 12% Phosphates, 4% Potash) worked into the upper two or three inches of soil at the rate of 4 pounds to 100 square feet will supply available nourishment for the new grass as well as a supply of food later on.

SEED MIXTURES

The selection of seed is vitally important, as good preparation will be of little benefit unless a proper mixture is selected for your particular locality. It is far better economy to spend a few extra pennies on a high quality seed and have a satisfactory lawn for many years than to sacrifice quality for temporary savings offered by inferior mixtures containing "filler seed". It is recommended to use a complete mixture as the various types of grasses blended in such a mixture are incorporated for specific purposes. A mixture containing two or more "base grasses" and one "nurse grass" is most ideal for Northwest soil and climatic conditions. We are listing below the three main groups in lawn seed. Your mixture should contain grasses from group one and two.

Group 1—Base Grasses—Those which will live for many years and will of themselves occupy the whole area on the existing type of soil if properly maintained. This class is almost invariably slow to mature. This group includes Kentucky Blue Grass, Chewing's Fescue, Creeping Bent.

Group 2—Nurse Grasses—Its life is short but it plays an important part in grass seed mixtures in that it grows fast and occupies the soil until the slower and more permanent varieties are far enough along to cover the ground. By its nature nurse grass seldom lives over three years and should not compose over 30% of the entire mixture. In this group we list Red Top.

Group 3—Filler Grasses—Are varieties not adapted to lawn and turf purposes but used to increase bulk in a mixture or lessen the price per pound. These grasses should not be used if a top quality lawn is desired. This group includes Rye Grasses, Crested Dogs Tail, Timothy and Mesquite.

Here in the Northwest lawns can be planted almost any time of year (except November, December, January and February) if the soil and seed are kept moist throughout the early growing stages. Because of the importance of keeping the soil moist during this period of growing it is most desirable to sow the seed either in early spring or early fall. Whatever the season, loosen the soil with a steel rake to a depth of one inch just before sowing, then divide the seed into equal parts, half to be sown as the sower walks back and forth in one direction (north and south) and the rest as he walks back and forth at right angles over the same area. A calm day permits more even distribution and a cloudy one assures more moisture in the soil.

As soon as the seed is sown the surface can be raked lightly with a fine tooth rake or covered with not more than ¼ inch of top dressing. In either case the ground should be rolled (not too heavily) to firm the earth around the seed and promote quick germination.

WATERING

Watering should be done first gently and with a fine sprinkler to prevent washing. It should be done often enough and generously enough to **keep the soil and seed from drying out.** After the grass is well started the watering should be more thorough and less frequent. **Deep watering encourages the development of deep roots upon which the future success of the lawn largely depends.** Shallow watering or sprinkling tends to bring the roots near the surface where they are quickly affected by severe heat.

MOWING

In mowing a new lawn set the blades to cut not less than 2 to 3 inches above the ground. As the turf becomes thick it can be mowed closer although the longer the grass can be left, consistent with good appearance, the better for the grass. Shortly clipped lawns dry out fast during hot summer months and when this conditions once starts it is very hard to check.

It is best to catch and remove all grass clippings each time the lawn is mowed. If this is not done they will form a soggy mat at the soil surface robbing the soil of Nitrogen (needed to decompose vegetation) and cause a sour condition not beneficial to growing plants.

ESTABLISHED LAWN

To propserly care for an established lawn a few simple rules should be followed each growing season. Early in the spring the turf should be well raked with a steel or moss rake removing all leaves and other material accumulated during the winter. An application of a complete plant food (4-12-4 formula) at the rate of four pounds to every one hundred square feet should be applied early in the spring to afford the lawn plenty of food right from the start. As dry weather comes on watering should be **consistent** and **deep.** The second application of fertilizer should be made about the first of July at the rate of two pounds per hundred square feet. This should be repeated again near the end of August. After the first rains in the fall a top dressing of one-third peat moss, one-third sand and one-third raw bone meal should be applied over the entire area at a thickness of one-fourth to one-half inch. If these steps are followed each year you will have a lawn that will be the envy of every home owner.

LAWN WEEDS

Weeds are without doubt the greatest enemy of all cultivated vegetation, be it lawn, vegetable, flower garden or field crop. Invariably they thrive anywhere, particularly on soils so sterile that the crop intended for that area can not thrive.

Unfortunately, many weed seeds have the ability to retain their viability for many years, even when buried deeply in the soil. When supposably "weed free" ground is turned over and worked for planting, weeds will start growing. Weed seed that has been dormant deep in the ground for many years will start to grow when worked up to soil surface. Nature has provided hundreds of ways of distributing these seeds. Some are carried through the air by the wind; others by run-off water after a heavy rain. Still others become mucilaginous and adhere to vehicles, the feet and fur of animals and the clothes of people.

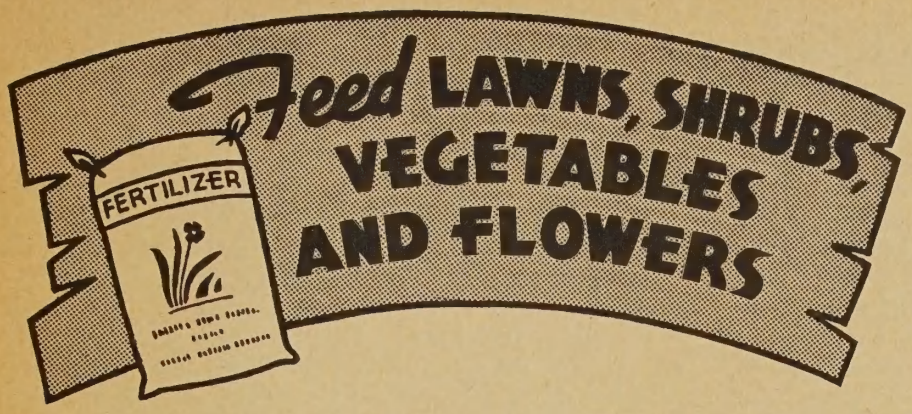
ERADICATING WEEDS

Many methods of eradication, practical and theoretical, have been offered to the home gardener. Many good ways and many not so good. The facts we set down here are based upon our own knowledge and experiences. No doubt there are other methods equally as good but space does not allow detailed report.

Contrary to many beliefs, Sulphate of Ammonia is not a very successful way to kill weeds as it is a highly concentrated nitrogen fertilizer and in many cases will actually increase the growth of weeds. A good complete fertilizer is good assurance against weeds as a thick healthy turf will crowd out many.

There is now available a new "selective weed killer" that will kill weeds but not turf grasses. It is sold under the brand name of MEO-181 and if used according to directions will effectively control all lawn weeds. It is applied by spraying.

Where the area is badly infested, first thoroughly weed by hand. By thoroughly we do not mean merely to get every weed, but to get them out by the roots so that they will not reappear again within a few days. Bare spots produced by the removal of spreading types should be promptly reseeded in order to keep out other weeds.



LAWN

Every day we have inquiries on how to fertilize a new lawn or an established lawn or flower beds, etc. With this in mind we have set down a few facts generally covering this subject. If more detailed information is desired, please come in and let us help you.

The proper feeding of a new lawn is extremely important as the early stages in the growth of the grass are most crucial ones. A good supply of plant food is necessary for the production of vigorous grass that will soon cover the entire seeded area and keep weeds crowded out.

After the seed bed is prepared, a well balanced plant food should be applied at the rate of 4 pounds per 100 square feet, raked into the top 2 or 3 inches of soil. If plant food is applied just before the raking of the soil prior to seeding it can be forked into the soil and the soil surface smoothed and finely pulverized in the same operation.

The proper feeding of an established lawn is extremely important from an economical standpoint as a healthy established lawn requires far less water and care than one that lacks plant food. As soon as the grass on an established lawn shows signs of beginning spring growth the first feeding of the year should be made with a good complete plant food at the rate of 4 pounds per 100 square feet and watered well into the soil. A second application should be made in May at the rate of 2 pounds per 100 square feet and this same quantity should again be applied about the middle of July. If this program is followed you can be assured of having an outstandingly beautiful turf of thick velvety grass. Just before winter sets in an application of raw bone meal at the rate of 4 pounds per 100 square feet will give your lawn the necessary food it requires during the winter months.

SHRUBS

All shrubs respond to the application of plant food. The first feeding should be broadcast in the early spring at the rate of 3 pounds per 100 square feet of the area lying beneath the spread of the branches.

The second application should be given to the shrubs about two months after the first feeding. This application should be made at the rate of about 2 pounds per 100 square feet and thoroughly soaked into the ground. If the shrubs are growing as a hedge plant, food should be spread on either side of the hedge at the rate of 4 pounds for each 50 feet of row. The application should cover the soil as far away from the base of the hedge as corresponds with the branch spread. In most cases this will not be less than 2 feet on either side of the hedge. It is important that a great deal of water should be used in washing the fertilizer down to the roots as all good healthy shrubs are deep rooted.

FLOWERS

Liberal feeding with fertilizer promotes a vigorous growth of annual flowers and hastens the flowering period. Plant food should be applied with a spreader and raked into the soil at the rate of 4 pounds to each 100 square feet or 2 level tablespoonsful per square foot of bed after the seed bed has been prepared and well tilled but before the seeds are sown.

A second feeding should be made when the flowers are in the bud stage, by this time much of the plant food of the original application will have been used by the growing flowers and they will need additional food to carry them through the blooming period. This application may be lighter, consisting of 2 pounds of complete plant food per 100 square feet of soil. Immediately after the application has been made the plant food should be worked into the soil with a hoe or rake and then thoroughly water the bed.

One should be careful to avoid spilling plant food on the foliage of plants. If this does occur the plant food should be immediately washed from the leaves.

Perennial flowers should be fed at the same rate, however, more care should be taken to protect the foliage from the plant food as most perennials are grown in clumps.

VEGETABLES

The feeding of a vegetable garden is very important as an abundant supply of complete plant food is necessary for the development of good quality and tasty vegetables. The garden plot should be fertilized with a spreader before seed is planted at the rate of 4 pounds per 100 square feet. This should be done after the bed is completely prepared but before the seeds are shown.

Six weeks after the original application, plants such as tomatoes, cabbage, celery, peppers and egg plant will be greatly benefitted by an application of plant food. This application should be made at the rate of 2 pounds for each 100 square feet or 1 pound to 50 feet of row and cultivated into the soil thoroughly with a hoe or garden plow. The second feeding will carry the plants through to maturity and greatly increase the yield and flavor. Care should be taken not to over-fertilize vegetables as too much plant food will cause abnormal growth and poor flavor will result.

Pruning Shrubbery

IF you want to know why the shrubbery around one house looks so much better than it does around another, a careful examination will usually reveal that the difference lies in the pruning. Lack of pruning, or improper pruning, will sometimes cause the most carefully planted landscape to appear overgrown in places, straggly in others, and with dead wood and bare places appearing in others.

If you want to do your pruning, study carefully the ultimate effect desired and the natural habits of your shrubs, and read up on the proper methods of pruning. Bear in mind that if a shrub has been properly planted, a most important step to success lies in using proper pruning methods in succeeding years. How a shrub or evergreen is pruned depends upon the nature of the shrub, its natural habits of growth, its blooming period and habit of blooming, its location in the landscape and its age.

If you are not sure of your ground, better employ, for the first year or two anyway, a man from a reliable local landscape gardening firm or nursery which has a maintenance department.

WHY ONE PRUNES

Pruning of growing shrubbery is done for a number of reasons. A shrub is pruned while it is young and before it reaches its natural full size and in order to cause it to develop into a well rounded, thick branched type. It is pruned to remove old wood and to give new wood a chance to grow up from the base. It is pruned to remove any undesirable habits of growth such as long, straggly stems. It is sometimes pruned to make it develop to some specific shape as in the case of hedges. Again, it may be pruned as a measure in control of disease or insect pests.

Thus the purpose in pruning must determine the way in which a shrub is pruned. Sometimes, one prunes in order to get the maximum bloom. Again, the desired end is colorful foliage. With some shrubs, as certain dogwoods, one prunes to induce growth of twigs which are colorful in winter.

PRUNE AT PLANTING

Any deciduous shrub, tree or other type of woody plant material not purchased balled and burlapped, needs a root pruning before planting. This consists mainly in cutting back straggling roots and taking out any pieces of broken roots. Don't be afraid to prune roots. It will mean that the roots cut back will branch out, form many more smaller feeding roots and the plants will flourish all the better. A sharp knife is best for this root pruning.

Immediately after a deciduous shrub is planted, the tops should be pruned back at least one-third and, with most varieties, cut back half way to the ground for best results. This will equalize the pruned root system of the plant, prevent excessive evaporation and enable the plant to take root more readily in its new location. It will also cause the shrub to put forth more branches and develop into a more shapely bush.

Certain shrubs will often die back part way after planting because of the wood drying out. These should be pruned to within 6 inches of the ground after planting. This applies to Tamarix, Rose of Sharon, Weigela, Buddleia, Callicarpa, bush roses and also Calycanthus.

Broadleaf evergreens, usually bought with roots balled and burlapped, do not need much, if any, cutting back on planting. This applies especially to boxwood, holly, daphne and rhododendrons. Types such as the cotoneasters, firethorns and barberries can be cut back perhaps a third if they appear "straggling". The narrow leaf or needle evergreens seldom need any pruning at planting.

PRINCIPLES OF PRUNING

First—either do your own pruning after careful study or, we repeat, employ a competent local landscape firm or nursery that has a landscape maintenance department. Never turn over the work to an unknown or ignorant man of the type known as "tree butcher", of which there are plenty who make the rounds calling at your door for work.

Second—never give your shrubbery a "boyish bob" type of pruning, that is, cutting everything back severely to a given distance from the ground regardless of every other factor. This is what the unskilled workman is likely to do.

Third—prune at the proper time of year. This is usually just after the normal blooming period of any individual shrub. Shrubs that bloom in mid-summer or late in the season should be pruned in winter or early spring before growth starts. Shrubs that bloom in early spring on new wood grown the previous season should be pruned just after blooming.

Fourth—when pruning, keep in mind the nature of the plant, its habits of growth, its needs and your purpose in pruning. Some shrubs grow to considerable height, others are dwarf. Some have the form of a miniature tree, others grow from the ground in canes. Some need to be cut back severely every year, others need only the most conservative pruning.

Fifth—be sure to use correct tools. For most pruning, a good pair of pruning shears will suffice. Heavy branches can be cut off with a pair of lopping shears or a pruning saw. Do not use an axe or hatchet to prune. Branches should never be broken off, for diseases are likely to enter the jagged end. Cut back each branch or twig to the next larger one, so that no useless stub is left.

GRAFTING.

GRAFTING is described by Webster as a process whereby a part (called the scion) taken from one plant, is made to unite with and grow upon another plant or part of a plant (called the stock). The scion may be a single bud, a small twig bearing a few to several buds, a piece of stem (as of a cactus), a terminal shoot, or a fragment of root of a desirable variety. Grafting is a method of propagation in which the primary purpose is either to increase the chances of the scion's making successful growth by giving it a new foundation in the form of a more vigorous root system, or to change the form, character, fruit-bearing quality, etc., of the stock plant or tree by substituting some other variety for its original tap.

To be successful, grafting must insure and maintain intimate contact between the cambium tissues of scion and stock, that is the layer of growing cells that is just under the bark and outside the wood. Most grafting is done with dormant scions, which means in winter or early spring, unless the scions can be kept dormant in cold storage until the stock plants are in best condition to receive them.

After the scion and stock have been cut and adjusted they are tied in place after which the whole area of wounded surfaces is covered with grafting wax to prevent the drying of the parts and to exclude moisture and disease.

Many kinds of grafting are practiced by expert plantsmen for special purposes or with specific plants, but those best suited to the average gardener's needs are Whip, Cleft, Side, and Bridge grafting.

Whip or Tongue grafting is a method where both scion and stock (of about the same diameter) are cut on a long slant; a slit is made so that the tongue of one fits into the slot of the other. They are then bound firmly with grafting tape and, if to be exposed to the air, covered with grafting wax.

Clft grafting is the simplest method, and one generally used in working over old trees—either to make a worthless seedling or other specimen produce good fruit, or to make it possible to grow more than one variety on a single tree.

Stock branches one-half inch to two inches in diameter are sawed squarely across with a sharp, fine-toothed saw, where the bark is smooth. These stumps are then split with a chisel and mallet to a depth of about 1½ inches and the slit is pried apart with a special grafting iron or wedge of hardwood until it will admit two scions (one at each side). These are previously cut to a slender wedge shape at the bottom; they are usually 4 to 6 inches long and bear 3 or 4 buds. Each scion is inserted in the slit stock and adjusted so that its lowest bud is just above the top of the stock and on the outside. Also the scion is slanted slightly outward so that its cambium layer is certain to be in contact with that of the stock at least at one point.

Next the wedge or iron is gently withdrawn without displacing the scions. As a rule the pressure of the wood is enough to keep them in place, but the graft can be tied with cord or tape if necessary. The entire top of the stock to below the base of the split is then covered with grafting wax. If both scions grow, the weaker is cut away the next year.

Side grafting is a method where a cut is made downward into the stock just beneath the bark, and the scion (its base cut wedge shaped) is thrust beneath the bark, tied there and waxed. The stock above the graft may or may not be cut off. This method is especially useful for developing branches at bare spaces along trunks and main limbs.

Bridge or Repair grafting is used to establish new sap connections across large wounds such as those made in winter when mice gnaw the bark of trees. Water sprouts, being long and lusty, make the best scions for this work. The edges of the wound are trimmed back to healthy wood at top and bottom where slots are cut at 4 to 5 points around the trunk. The scions are cut long enough to fit in to corresponding slots above and below so as to have a slight bow outward and each scion is cut slanting at each end so that the smooth part will fit against the trunk to which it is tacked firmly. All cut and injured surfaces are then covered with grafting wax or wound with waxed cloth. Trees so treated may be saved, even though completely girdled as, in time, the scions will not only form unions at top and bottom, but will also grow together to form a new exterior trunk.

Common and Botanical Names of Flowers and Plants

Adam's Needle	**Yucca*
African Blue Daisy	*Arctotic Grandis*
African Golden Daisy	*Dimorphoteca*
African Lily	**Agapanthus*
Allegheny Vine	*Adlumia*
Amethyst	*Browallia*
Asparagus Fern	*Asparagus Plumosus*
Australian Pea Vine	*Dolichos Lignoses*
Baby Blue Eyes	*Nemophila Insignis*
Baby Primrose	*Primula Malacoides*
Baby's Breath	*Gypsophila*
Bachelor's Button	*Centaurea Cyanus*
Balloon Vine	*Love in A Puff*
Balsam Apple	*Momordica Balsamina*
Barberry	**Berberis*
Basket of Gold	*Alyssum Saxatile*
Beard Tongue	*Pentstamon*
Bell Flower	*Campanula*
Black Eyed Susan	*Thunbergia*
Blanket Flower	*Gaillardia*
Blanket of Snow	*Alyssum, Sweet*
Blazing Star	*Liatris*
Bleeding Heart	**Dielytra*
Blue Bottle	*Centaurea Cyannus*
Bluets	*Centaurea Cyannus*
Boston Ivy	*Ampelopsis Veitchii*
Boxwood	**Buxus*
Bridal Wreath	**Spirea Prunifolia*
Bush Poppy	*Hunnemannia*
Butterfly Bush	**Buddleia*
Butterfly Flower	*Schizanthus*
Butterfly Pea	*Centrosema*
Buttonwood	**Plantanus Orientalis*
California Poppy	*Eschscholtzia*
Canary Bird Flower	*Tropaeolum Canariense*
Candytuft	*Iberis*
Canterbury Bells	*Campanula Medium*
Cape Jasmine	**Gardenia Florida*
Cardinal Climber	*Ipomoea Quamoclit*
Cardinal Flower	*Lobelia Cardinalis*
Castor Oil Beans	*Ricinus*
Catchfly	*Silene*
Chinese Bell Flower	*Platycodon*
Chinese Lantern Plant	*Physalis Franchetti*
Clove Pink	*Dianthus Plumarius*
Cockscomb	*Celosia*
Columbine	*Aquilegia*
Cone Flower	*Rudbeckia*
Coral Bell	**Heuchera*
Cornflower	*Centaurea Cyanus*
Cornflower Aster	*Stokesia*
Cowslip	*Primula*
Crane's Bill	**Geranium*
Cypress Vine	*Ipomoea Quamoclit*
Daisy, English	*Bellis Perennis*
Dogwood	**Cornus Florida*
Dusty Miller	*Centaurea Gymnocarpa*
Dusty Miller	*Cineraria Candidissima*
Dutchman's Pipe	*Aristolochia*
Edelweiss	*Gnaphalium*
Elephant's Ears	**Caladium*
English Daisy	*Bellis Perennis*
English Primrose	*Primula Vulgaris*
Evening Primrose	*Oenothera*
Everlastting Pea	*Lathyrus Latifolius*
Everlastings	*Acroclinium*
Everlastings	*Helichrysum*
Everlastings	*Rhodanthe*
Everlastings	*Statice*
Fairy Lily	**Zephyranthes*
Feverfew	*Matricaria*
Flax	*Linum*
Fleur De Lis	**Iris Germanica*
Floss Flower	*Ageratum*
Flowering Maple	*Abutilon*
Flowering Tobacco	*Nicotiana*
Forget-Me-Not	*Myosotia*
Four O'Clock	*Mirabilis*
Foxglove	*Digitalis*
Garden Heliotrope	*Valerian*
Gentian	*Gentiana*
Geum	*Avens*
Globe Amaranth	*Gomphrena*
Gold Dust	*Alyssum Saxatile*
Golden Bell	*Forsythia*
Golden Chain	**Cytisus*
Golden Feather	*Pyrethrum Aureum*
Golden Rod	*Solidago*
Grass Pinks	*Dianthus Plumarius*
Harebell	*Campanula Carpatica*
Hollyhocks	*Athaea Rosea*
Honesty	*Lunaria*
Hops, Japanese	*Humulus*
Horn of Plenty	*Datura Cornucopia*
Hyacinth Bean	*Dolichos*
Ice Plant	*Mesembryanthemum*
Indian Shot	*Canna*
Jacobean Lily	**Amaryllis Formosus*
Japanese Pinks	*Dianthus Heddewegii*
Jerusalem Cherry	*Solanum*
Job's Tears	*Coix Lachryma*
Joseph's Coat	*Amaranthus Tricolor*
Kenilworth Ivy	*Linaria Cymbalaria*
Kudzu Vine	*Thunbergia Pueraria*
Lace Flower	*Didiscus*
Lady's Ear Drop	*Fuchsia*
Lady's Slipper	*Balsam*
Larkspur	*Delphinium*
Lavender	*Lavandula*
Leadwort	**Plumbago*
Lemon Verbena	**Aloysia Citriodora*
Lily of the Valley	**Convallaria*
Love Grass	*Nemophila*
Love in a Mist	*Nigalla*
Love Lies Bleeding	*Amaranthus Caudatus*
Maiden Hair Fern	*Adiantum*
Mallow	*Hibiscus*
Marvel of Peru	*Mirabilis*
Matilija Poppy	*Romneya Coulteri*
Meadow Rue	**Thalictrum*
Mexican Fire Bush	*Kochia*
Mexican Fire Plant	*Euphorbia Hetorophylla*
Mignonette	*Reseda*
Mock Orange	**Philadelphus*
Monk's Hood	**Aconitum*
Moonflower	*Iponoca*
Mountain Rose	*Antigonon*
Morning Glory	*Convolvulus*
Mourning Bride	*Scabiosa*
Musk Plant	*Mimolus Moschatus*
Myrtle	*Vinca Minor*
Nasturtium	*Tropaeolum*
Night Scented Stock	*Matthiola*
Orange Daisy	*Dimorphoteca*
Painted Tongue	*Salpiglossus*
Pampus Grass	**Gynerium*
Pansy	*Viola*
Passion Flower	*Passiflora*
Peach Bells	*Campanula Persicifolia*
Periwinkle	*Vinca*
Pheasant's Eye	*Adonis Aestivalis*
Pin Cushion	*Scabiosa*
Pinks	*Dianthus*
Polyanthus	*Primula*
Poppy	*Papaver*
Pot Marigold	*Calendula*
Prince's Feather	*Amaranthus Cruentus*
Quaking Grass	*Briza*
Ragged Robin	*Lychinis*
Red Hot Poker	*Tritoma*
Rock Cress	*Arabis*
Rocket	*Hesperia*
Rose Campion	*Lychnis*
Rose of Heaven	*Agrostema*
Rose of Sharon	*Althaea*
Sand Verbena	*Abronia*
Satin Flower	*Godetia*
Scarlet Sage	*Salvia Splendens*
Sea Bugloss	*Anchusa*
Sea Lavender	*Statice*
Sea Pink	*Armeria*
Smilax	*Myrsiphyllum Asparagoides*
Snapdragon	*Antirrhinum*
Sneezewort	*Achillea*
Snow of Summer	*Cerastium*
Snowball	**Viburnum*
Snow on the Mountain	*Euphorbia Variegata*
Speedwell	**Veronica*
Spider Plant	*Cleome*
Star of Bethlehem	**Ornithogalum*
St. Bruno's Lily	**Anthericum*
Stocks	*Gilliflower*
Stone Crop	*Sedum*
Straw Flower	*Acroclinium*
Straw Flower	*Helichrysum*
Straw Flower	*Rhodanthe*
Straw Flower	*Statice*
Summer Cypress	*Kochia*
Sunflower	*Helianthus*
Sunplant	*Portulaca*
Swan River Daisy	*Brachycome*
Sweet Rocket	*Hesperis*
Sweet Shrub	*Calycanthus*
Sweet Sultan	*Centaurea Imperialis*
Sweet William	*Dianthus Barbatus*
Tagetes	*Marigold*
Tassel Flower	*Cacalia*
Thimble Flower	*Gilia*
Thrift	*Armeria*
Tobacco	*Nicotiana*
Transvaal Daisy	*Gerbera*
Trumpet Flower	*Datura*
Trumpet Vine	*Bignonia*
Umbrella Tree	*Catalpa*
Venus' Looking Glass	*Campanula Speculum*
Violet	*Viola Odorata*
Virgin's Bower	*Clematis*
Virginia Creeper	*Ampelopsis Quinquefolia*
Wallflower	*Cherianthus*
Wind Flower	*Anemone*
Wormwood	*Artemesia Absynthium*
Yarrow	*Achillea*
Youth and Old Age	*Zinnia*

*Plants generally grown from bulbs or rooted stocks.

Flower Planting Guide

An understanding of the natural adaptation of certain plants to certain purposes is necessary for successful planting. Too many failures are the result of trying to grow shade-loving plants in full sun, acid-loving plants in limestone regions and swamp-margin plants on dry hillsides. A little study of plant requirements will obviate losses, and improve the vigor and naturalness of the plant groupings. Some of the most common types of plants, with suggestions as to various situations in which they can be used, follow.

Annuals

Annuals are particularly useful to the home-gardener who wishes to have a great display of bloom for small expenditure. As they are grown each year from seeds, and bloom the same season, they are particularly valuable for the new garden in which perennials have not had time to become established. They also bloom most prolifically in midsummer when blossom effect from perennials is relatively sparse. Longer-lived plants which are grown as annuals are treated here as such.

FOR SUN AND DRY SOIL. Most annuals like full sun, and a few are particularly useful for hot, dry locations where the midsummer sun bakes out most other plants:

- Portulaca
- California Poppy
- Shirley Poppy
- Zinnia

FOR PARTIAL SHADE. Some which will thrive and sometimes bloom longer in partial shade include:

- Nasturtium
- Snapdragon
- Pansy
- Sweet William
- Balsam
- Clarkia
- Nemophila
- Annual Stock

FOR CUTTING. Annuals are prolific and constant in bloom and vary widely in color and size, so they naturally become the chief reliance in the cutting garden or border. Those particularly useful in view of their ease of growth and long season of bloom are:

- Snapdragon
- Calendula
- Coreopsis
- Cosmos
- Larkspur
- California Poppy
- Gypsophila
- Ageratum
- Heliotrope
- Sweet Pea
- Gaillardia
- Zinnia
- Blue Laceflower
- Annual Chrysanthemum
- Aster
- Marigold
- Clarkia
- Lupine
- Verbena
- Nasturtium
- Annual Phlox
- Salpiglossis
- Marigold
- Stock

FOR CONTINUOUS BLOOM. Annuals which reach flowering size in a short period may be given several sowings, 2 or 3 weeks apart, during the summer. These include:

- Gypsophila
- Cornflower
- Poppy
- Phlox
- Coreopsis
- Candytuft
- Mignonette

Sweet Alyssum and Edging Lobelia may be cut back to produce later bloom.

FOR WINDOW AND PORCH BOXES. As the plants in boxes must usually be replaced each year, the use of annuals here is inevitable.

For center of box—

- Zinnia
- Marigold
- Blue Salvia

To trail over edge—

- Sweet Alyssum
- Verbena
- Petunia
- Thunbergia
- Lobelia

ANNUAL VINES: These offer an excellent group of plants for covering unsightly fences or walls quickly, or for filling bare spots against a new house or fence while the flower perennial vines are becoming established. The most interesting of the annual vines are:

- Morning glory—
  - HeavenlyBlue
  - Scarlet O'Hara
- Moonflower
- Scarlet Runner Bean
- Canary Bird Vine
- Cardinal Climber
- Gourds—mixed
- Nasturtium—tall mixed

Perennials

Perennials are those plants that bloom annually, their roots lasting from year to year. Many may be grown from seeds; others are propagated by division of existing roots or by cuttings. They include many of our finest garden flowers and have the advantage of needing less yearly attention than annuals, in order to yield a succession of bloom from early spring until frost. Most flowering plants need sun, and except for those listed for shade, perennials should have at least a half day's full sun.

TO INSURE SUCCESSION OF BLOOM (In order of blooming season):

- Bleeding Heart
- Columbine
- Peony
- Phlox
- Oriental Poppy
- Japanese Iris
- Delphinium
- Aster
- Chrysanthemum

FOR SHADE. Few of our garden perennials will succeed in dense shade. Where no sun penetrates, the list must be restricted largely to those plants which are native to thick woodlands. Where there are two or three hours of sun, or flickering shade from trees, certain of our garden favorites will bloom satisfactorily.

Dense Shade

- Lily-of-the-Valley
- Trillium
- Violets (native species)
- Plaintain Lily

Semi-Shade

- Japanese Anemone
- Foxglove
- Bleeding Heart
- Primrose

For Light, Poor Soil

- Gaillardia
- Flax
- Lupine
- Iceland Poppy
- Moss-pink Phlox
- Yucca

For Heavy Clay Soil

- Tiger Lily
- Perennial Pea
- Siberian Iris

FOR CUTTING. Perennials form an important part of the well-established cutting garden. Many may also be cut from the border to induce further bloom. Among those that are useful especially as cut flowers are the following:

- Japanese Anemone
- Aquilegia
- Shasta Daisy
- Lily-of-the-Valley
- Coreopsis
- Delphinium
- Peonies
- Sweet William
- Baby's Breath
- Helenium
- Coral-bells
- Iris—all species
- Gold-banded Lily

EASILY GROWN FROM SEED. While some perennials are most satisfactorily increased by division or cuttings, others are easily grown from seed. A few will bloom the first year if seed is sown early indoors. The rest can be counted on for flowers the second summer. Among those thus easily raised from seed are the following:

- Golden Marguerite
- Aquilegia
- English Daisy
- Shasta Daisy
- Delphinium
- Digitalis
- Gypsophila
- Candytuft
- Regal Lily
- Iceland Poppy
- Oriental Poppy
- Balloon-flower
- Salvia

CREGO ENCHANTRESS

ASTERS are among the most useful, decorative, late summer plants for the amateur gardener. They are easily grown requiring only a normal amount of care for the abundance of flowers they will give in return. In warm sections seed can be sown directly in the garden after first frosts. Here in the Northwest they should be started in flats indoors and plants set out about the middle of May or thereabouts.

Asters prefer a rich soil rather than a sandy loam. They should be cultivated regularly and watered before the soil becomes too dry. Every plant must have plenty of space to develop fully without being crowded. The tall branching variety should be set about 15 to 18 inches apart each way and the medium growing sorts 10 to 12 inches apart, while the dwarf types can be as close as 8 to 10 inches.

Super Giant El Monte Aster. Deep glowing crimson blooms composed of daintily interlaced bloom-like petals somewhat similar in form to Giant California, but earlier and much larger. The huge flowers are borne on unusually heavy, non-lateral base-branching stems, earlier in blooming than other types. **Packet, 10c.**

Super Giant Los Angeles Aster. Same type as the El Monte, however, the color is a pure shell pink blending to creamy pink in the center. **Packet, 10c.**

Golden Sheaf Aster. The deepest yellow aster yet offered and the only pure yellow aster of giant size. The flowers are fully double with an attractive crest-like center of good substance and depth of petal. **Packet, 10c.**

Crego Enchantress Aster. This variety offers an entirely new color in asters, a luscious shade of lively salmon rose distinct from all other colors yet developed. The blooms are large and graceful. The plants are free flowering, branching and wilt-resistant. They will bloom until late September. **Packet, 10c.**

Improved Crego Wilt-Resistant Aster. Beautiful, large colorful flowers 4 to 5 inches in diameter. Blooms are fully double, about 2½ inches thick, carried on long, strong stems. The individual petals are gracefully curled and twisted, giving the whole flower an artistic appearance not unlike a Japanese Chrysanthemum. Plants grow about 2½ feet tall and bloom from late August until the middle of October. We offer the following varieties: White, shell pink, deep rose, crimson, orchid, azure blue, purple, lavender, peach blossom and mixed. **Packet, 10c.**

Improved California Sunshine Aster. This fascinating new aster type—rightly called the most beautiful in the world—is fast becoming the most popular of all asters. The flowers are 4 to 5 inches across, are composed of a single row of loosely placed outer petals, which contrast with the unique yellow quill-like center disc. Stems are long and heavy, on plants 2 to 3 feet in height. We offer the following varieties: White, pink, lavender, violet, rose and mixed. **Packet, 10c.**

Improved Queen of the Market. Have been developed especially for cut flowers and border work, with the result that stems are comparatively long—about 10 to 12 inches—and exceedingly strong. The plants are about 18 to 20 inches tall and bear generous quantities of medium sized blossoms. We offer the following varieties: White, light blue, deep rose, scarlet, purple, peach blossom and mixed. **Packet, 10c.**

Improved Giants of California Aster. Curled and interlaced aster plants are somewhat taller than the Super-Giant and carry a few lateral branches. They reach a height of about 3 feet and usually carry from 8 to 10 or even 12 flowers per plant. The flowers are large and full, 4 to 5 inches across, with graceful, curly-tipped petals. Late bloomers, so seed should be started early indoors in flats. We offer the following varieties: White, peach blossom, light blue, deep rose, dark purple and mixed. **Packet, 10c.**

AGERATUM Small balls of color in sizeable clusters. Constant bloomer from spring till late fall. These plants like rich, light, well-fertilized loam. Combines exceedingly well with Columbine, Scabiosa, Delphinium, French Marigold, Salpiglossis. We offer the following varieties: **Tall Blue Perfection,** 2 feet tall; **Blue Perfection Medium,** blue, large flowers; semi-dwarf; **Little Dorrit,** white dwarf; **Little Blue Dorrit,** light blue dwarf. **Packet, 10c.**

ALYSSUM White, sweet-scented edging and basket plants. For border sow thickly. Grows best in rich, light, well fertilized loam. Combines exceedingly well with Violets, Forget-me-nots, Gypsophila. We offer the following varieties: **Benthami Martimum,** white, sweet scented, grows 1 foot tall; **Little Gem,** pure white, grows 6 inches tall; **Lilac Queen,** lovely lavender, grows 6 inches tall; **Dwarf White,** grows 3 inches tall; **Gold Dust** (saxatile compactum), a perennial yellow type, growing 1 foot tall; **Prostumbens** (Carpet of Snow), excellent for rockeries or covering small areas. **Packet, 10c.**

AMARANTHUS

(hA). Does well in hot sunny places. 1 to 2 feet tall. Related to Cockscomb. Grown for the vividly colored foliage and showy flower clusters. Does best in moderately rich light soil. Position—plant in borders in front of shrubbery. Varieties: **Caudatus** (Love Lies Bleeding), crimson drooping flower spikes, tall. **Joseph's Coat** (tri-color) red, yellow and green foliage. **Tall. Mixed Shades. Packet, 10c.**

BACHELOR BUTTON

(Corn Flower) (hA). Hardy, rather thistle-like flowers, fine for cutting and border planting. Bloom from early summer until hard frost. **Jubilee Gem,** splendid for edging, borders, or cutting. Tidy, compact plant, covered with double, rich blue blossoms. **Pkt. 10c. Blue Boy,** excellent rich blue. Tall with strong stems. **Double Rose,** same as Blue Boy except in color. **Double Mixed; Single Mixed. Packet, 10c.**

CALENDULA CHRYSANTHA

BLUE LACE FLOWER

(Didiscus). (hA). Exquisitely dainty clusters of lavender-blue flowers that look like tiny parasols. Fine for cutting. Does best in cool locations. Grows to a height of about three feet. **Packet, 10c.**

CALENDULA

(Pot Marigold). (hA). Does well in sunny or partial shade. Hardy, stout growing, with entire bright-green, thickish leaves. Continual bloomer. Grows in any soil, but responds to moderately rich loam. Grouping—for bedding out; in front of shrubbery; for the mixed border, combining with Delphinium, Shasta Daisy, Salvia or Alyssum. Varieties: **Chrysantha,** buttercup yellow with incurved petals; **Orange Shaggy,** deep orange shading to lighter center; **Radio**, deep orange with quilled petals; **Balls Gold,** golden yellow, light center; **Balls Orange,** bright orange shades; **Campfire,** deep orange with scarlet sheen; **Lemon Queen; Double Mixed. Packet, 10c.**

CALLIOPSIS

(hA). Graceful for border plants, supplying throughout the summer an abundance of showy flowers of yellow, crimson and maroon. Tall varieties excellent for cut flowers. Grows in any soil, but prefers a rich, light, well fertilized loam. Grouping—with Coreopsis, Deep-blue Delphiniums, Snapdragons and Salvia. Varieties: **Tall Single Mixed; Tall Semi-Double Mixed; Drummondi** (Golden Wave), golden yellow center; **Dark Brownish Red; Golden Crown. Packet, 10c.**

CANDYTUFT

(hA). Very showy, branching plant. Excellent for beds, masses, rock gardens and cut flowers. Blooming prolifically in spring, and during other seasons by successive sowing of seed. Grows in ordinary soil. Varieties: **Coronaria,** giant white hyacinth flowered; **Umbellata Type,** crimson, lilac, rose, cardinal, white, flesh pink, lavender and mixed. **Packet, 10c.**

CANTERBURY BELLS

(hB). The real bell flower. Branching plants heavily loaded with large pendant bells. Both in plain and cup and saucer types. Excellent for flower borders and rockery background. Grouping—with Scabiosa, Perennial Aster and Lupine. Varieties: **Campanula Medium,** single mixed, double mixed; **Calycanthema** (cup and saucer), light blue, dark blue, white, rose pink and mixed. **Annual Mixed.** Blossoms from seed in less than six months. **Packet, 10c.**

CHRYSANTHEMUM

(hA). Attractive long-stemmed summer flowering plant, wide varieties of color. Sow seeds in flats and transplant when soil is warm. Height from 1 to 2 feet. Varieties: **Coronarium,** tall double yellow; Tall double lemon; Tall double mixed; **Carinatum,** single mixed. **Packet, 10c.**

CLARKIA

(Rocky Mountain Garland). (hA). Grows from 12 to 18 inches tall and does well in sunny or light shade. Branching, erect plant, with smooth, light-green leaves. Furnishing an abundance of cut blooms as well as attractive green foliage. Grows in ordinary light garden loam. Grouping—plant with Larkspur, Pansies, Nicotiana or Virginia Stocks. Varieties: **Scarlet Queen, Salmon Queen, Firebrand, Brilliant,** also **Single, Double Mixed. Packet, 10c.**

DOUBLE SUNBURST COREOPSIS

COREOPSIS

(grandiflora). (hP). A spreading plant, with long, smooth, dark green lanceolate leaves; large, daisy-like, golden yellow flowers. Plants grow from 1½ to 2 feet tall. Drought resistant; grows in any soil but best in moderately fertilized, light loam. Grouping—Blue Cornflower, Blue Salvia, Delphinium and Blue Larkspur. Varieties: **Double Sunburst,** large golden yellow, fully double; **Lanceolata,** golden yellow, semi-double. **Packet, 10c.**

COLUMBINE

(Aquilegia). (hP). Erect, branching plant, with long, slender stems. Will thrive in almost every situation, preferring partial shade and considerable moisture. Should be sprayed often to prevent aphis. Grouping—with Delphinium, Perennial Candytuft, Scabiosa, Stocks and Snapdragons. Varieties: **Mrs. Scott Elliott,** long spurred, **packet, 15c; Pink Shades (15c); Blue Shades (15c); Silver Queen (15c); Copper Queen (15c); Double and Single Mixed, Long Spurred Mixed, packet, 10c.**

CARNATION

(tP). Grows from 1 to 1½ feet. Easily winter killed, should be sown in flats during March. Transplant to other boxes when plants are 1 inch high, transfer to open soil when ground becomes warm. Carnations are best planted by themselves. Varieties: **Chabaud, Double Giant,** cardinal red, deep rose, flesh pink, white, mixed. (Annual) **Marguerite,** blooms four months from sowing, in mixed shades only. **Packet, 10c.**

COSMOS

(hA). Furnish an abundance of cut blooms during the early flower season. Seed sown in the open ground in April should bloom in July. Transplant not less than 18 inches apart. Pinching out tops when plants are a foot high makes them bushy and sturdy. Grow best in moderately rich, sandy loam. Grouping—plant between shrubs; in the background of mixed border, combining with Shasta Daisy, Lavender, Poppy and Regal Lily. Varieties: **Klondyke Orange Flare,** deep orange, blooms early; **Early Double Crested** (anemone flowered), pink beauty, white queen and mixed; **Early Flowering Mammoth,** light pink, crimson, white and mixed. **Packet, 10c.**

DAISY

African Daisy. (Arctotis). (A). A sun-loving plant better suited to western conditions than any other African daisy. The petals are white with light lilac backs, radiating from a steel blue and yellow center. **Packet, 10c.**

Double Daisy now rank among the most valuable plants for spring gardening, and beds composed entirely of these flowers create a very pretty effect. Seed should be sown in early spring to give strong plants to set out in October. Colors: **Red, Rose, White and Mixed.**
Packet, 10c.

Shasta Daisy. (P). Hardy plant bearing large white, single blooms with handsome yellow centers. Excellent for borders and especially pleasing in bouquets. **Packet, 10c.**

Michaelmas Daisy. (Perennial Aster). (P). Very effective as background against fences or walls. Blooms in September and October.
Packet, 10c.

DELPHINIUM

(perennial Larkspur). (hP). 1 to 8 feet, according to species and kinds. Sun loving but endures slight shade. Blooms freely from May until late fall. Grows in a variety of soils, but prefers rich, well drained, rather light soils, fertilize with manures during growing period, complete plant food during blooming period; peat or leaf mold should be added to heavy soil, bone meal also helpful. Grouping—Columbine, Salpiglossis, Snapdragons, Stocks and Gladiolus. Varieties: **Wrexham Hollyhock Strain (15c); Gold Medal Hybrids (15c); Blackmore** and **Langdon Strains (35c); Bellamosa,** dark blue; **Belladonna,** light blue; **Finest Mixed. Packet, 10c. Pacific Giants,** white and mixed colors. **Packet, 25c.**

DIGITALIS

(Fox Glove). (hP). 4 to 6 feet tall. Best in semi-shade, but will grow in sun. Long spikes that are crowded with large thimble-shaped blossoms, beautifully spotted. Grows in any soil, but prefers a rich, well fertilized, light garden loam; harbors sow bugs and snails. Work Naphthalene in soil around the plants. Grouping — in perennial border, alone or grouped with Hollyhock, Canterbury Bells, Shasta Daisy, Poppies, etc. Varieties: Purple, Rose, White and Mixed. **Packet, 10c.**

COSMOS

BACHELOR BUTTON

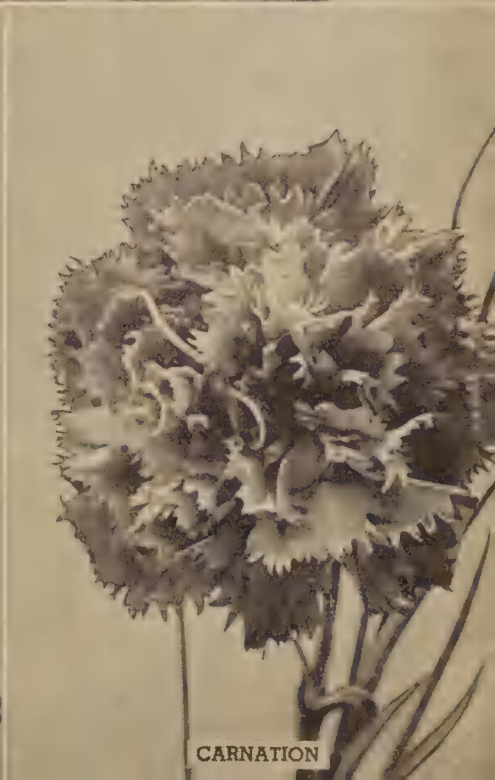
CALENDULA

LITTLE GEM ALYSSUM

AGERATUM

COLUMBINE

CANTERBURY BELL



CARNATION

DWARF GODETIA

GODETIA

(Satin Flower). (hA). Grows from 1 to 2 feet tall in sunny or slightly shady places. Erect, slender branching plant; light green, lanceolate leaves; large, expanded, single and double, satiny flowers. Seed should be sown in flats, transplanted when soil is warm. Grows in rather poor, sandy soil. Grouping—generally looks best alone, can be combined with Clarkia, Larkspur, certain Snapdragons and Stocks. Varieties: **Dwarf** rose, crimson, pink and mixed; **Tall Double Azalea Flowered** carminea, crimson, lavender, rich pink and mixed. **Packet, 10c.**

GEUM

(hP). 18 inches tall. Best in sun, but tolerates some shade. Hardy plants, with rosette formation of large, rough strawberry-like leaves; long flower stalks, bearing double rose-like flowers. Sow seed in early fall or early spring, produces blooming plants in one year. Grows well in most light soils; attacked by soil pests, use Naphthalene Flakes in soil. Grouping—looks well with tall Lobelia, Michaelmas Daisy and Salvia. Varieties: **Mrs. Bradshaw,** scarlet; **Lady Stratheden,** golden yellow; **Mixed. Packet, 10c.**

FORGET-ME-NOT

(Myosotis). (hB). These dainty flowers bloom in early April and form an excellent border with Tulips and other spring blooming bulbs. Their height ranges from 6 to 12 inches depending on soil and climatic conditions. **Packet, 10c.**

FOUR O'CLOCK

(Marvel of Peru). (hA). A favorite showy annual for backgrounds. Excellent for planting in front of porch or fences. The plants bloom freely from June until frost and reach a height of three feet. Will re-seed themselves. **Tall Mixed.**
Packet, 10c.

GAILLARDIA

(Blanket Flower). (A&P). 1 to 2 feet and spreading. Sun loving, but endures slight shade. Free blooming from early spring until late autumn frost. Gray-green, lobed, variable leaves with large daisy-like flowers. Very hardy, tolerating most soils, avoid fertilizer containing too much nitrogen; drought resistant, growing well on sandy banks. Grouping—plant in mixed border with dark blue Delphinium, russet Snapdragons, Salvia or Chrysanthemums. Varieties: (Perennials) **Dazzler,** maroon red, golden yellow; **Portola Hybrids** and **Mixed.** (Annuals) **Lorenziana,** double mixed; Single Mixed. **Packet, 10c.**

GERBERA

(Transvaal or Barberton Daisy). The flowers are excellent for cutting. Solid colored in many pastel shades, from pale amber through salmon and rose to rich ruby red. Raising plants from seed is not difficult, except that germination is uncertain and careful handling is necessary. For this reason propagation is generally done by cuttings. **Mixed colors.**
Packet, 15c.

GYPSOPHILLIA

(Baby Breath). (hA). These light airy plants have a hair-like foliage and produce a very lovely effect in the garden. Excellent with bouquets. Sow seed outdoors in early spring, repeat sowings for longer season of blooms. Thrive in moist moderately rich soil. Does well in rockeries. Varieties: **Grandiflora Alba,** true white; **Grandiflora Rosea,** pink; (Perennial) **Paniculata Alba,** single white. **Packet, 10c.**

HELICHRYSUM

(Monstrosum). (hA). Strawflower, growing from 2 to 3 feet tall. Stout branched plant, with oblong-lanceolate, bright-green, stiff leaves. This hardy annual makes an excellent winter bouquet with its red, yellow and white flowers. Sow in the open and transplant or thin out to 12 inches apart. Should be transplanted in separate bed by themselves. Varieties: **Golden Ball; Scarlet Ball; Salmon Queen; Silvery Queen; Canary Yellow; Violet Queen; Rose Carmine; Crimson; Double Mixed. Packet, 10c.**

HOLLYHOCK

(Althaea). (hP). Grows 6 to 12 feet in sun or partial shade. Erect plants, with spire-like, simple, hairy stems; large, rough, heart-shaped leaves; large, regular, round blossoms of various bright colors. Grows in any soil, enrich with sheep manure. Subject to rust. Control rust with fine dusting sulphur. Excellent when interspaced among shrubs. Varieties: **Double,** salmon rose, maroon, rose pink, scarlet, yellow and mixed. **Single,** mixed. (Annual) **Single,** mixed. **Packet, 10c.**

DOUBLE GAILLARDIA

GEUM

GODETIA

FRENCH MARIGOLD

HEAVENLY BLUE MORNING GLORY

AFRICAN DAISY

SHASTA DAISY

SINGLE GAILLARDIA

GIANT IMPERIAL LARKSPUR

LOBELIA

(hA). Grows 6 to 12 inches in sun or light shade. Trailing, or compact, bushy plants; variable, dark-green, bronzed, or light-green leaves. Irregular, small, tubular flowers, borne on slender pedicles, varying from light to dark blue. Excellent for borders, rock work and hanging baskets. For best results sow thinly in flats, covering with glass until seedlings are through soil. Transplant into a moist, well fertilized bed. Grouping—Gold Tuft, Iceland Poppy, Coreopsis, Siberian Wallflower and Pot Marigold. Varieties: **Crystal Palace,** dwarf dark blue; **Gracilis,** light blue trailing; **Sapphire,** dark blue, white eye, trailing. **Packet, 10c.**

LUPIN

(A). Easily grown, hardy plants with long graceful spikes of richly colored flowers. Equally valuable for bedding, borders or for cutting. Height 2 feet. **Packet, 10c. Russell Lupin,** a lovely new perennial Lupin with long, closely furnished spikes coming in a large variety of rich colors. **Packet, 15c.**

MIGNONETTE

(Reseda). (hA). A branching plant, growing 6 to 10 inches high, with dark-green, spatulate leaves; close-set, spike-like racemes of very fragrant flowers, blooming normally in August, but also in other seasons. Can be grown easily from seed and should be planted in rich light loam. Grouping—this plant does exceedingly well with practically all annuals. Should be planted in places where color is needed. Varieties: **Odorata Grandiflora,** white; **Victoria Perfecta,** brilliant red. **Packet, 10c.**

LARKSPUR

(hA). Grows from 3 to 4 feet in sun and light shade. Erect, bushy plants, with light green, finely dissected leaves. For earlier blooms, plant in flats and transplant. Prefers a rich, well fertilized soil. Use a complete plant food. Grouping—Blue Lace Flower, Hybrid Delphiniums, Clarkias, Snapdragons and Candytufts. Varieties: **Giant Imperial Daintiness,** lavender; **White Spire; Lilac Spire; Blue Spire; Blue Bell; Carmine King** and **Miss California,** deep rose on salmon; exquisite **Rose Pink** and **Mixed. Tall Double Flowered,** bright rose, light blue, dark blue, white; **La France,** salmon pink; **Los Angeles,** brilliant pink and mixed. **Packet, 10c.**

LINARIA

(Miniature Snapdragon). (A). This interesting species bears flowers which resemble miniature Snapdragons ending in single elongated spurs. It includes both trailing and erect growing varieties which are little known but worthy of greater attention. Height 12 to 18 inches. **Golden Yellow** and **Mixed. Packet, 10c.**

LINUM

(Flowering Flax). (A&P). These brilliant colored flowers certainly deserve a place in every garden. The life of the individual flower is short, but season of blooming can be prolonged by successive sowings. **Scarlet** and **Perennial Blue. Packet, 10c.**

MORNING GLORY

(hP). Plant in a sunny place. Grow from 6 to 18 feet, with slender climbing or twining stems. Variable, lobed or parted leaves with long, funnel-shaped flowers. A constant bloomer from June until September. Seed should be notched if hastened germination is desired. Does best in strong, fertilized soil with plenty of water. Plants should be cut down each fall for new growth. Varieties: **Major Tall Mixed; Japanese Fringed Mixed; Clark's Mammoth Blue,** sky blue shading to yellow in throat. **Heavenly Blue, Packet, 10c. Scarlet O'Hara (10c.)**

LANTANA

(hA). Low, compact, full-flowered varieties whose flowers in flattish clusters vary or change from brilliant yellow through orange to red. Widely grown as a greenhouse subject, being easily raised from either seed or cuttings, it is excellent as a summer bedding plant, blooming continuously until nipped by the frost in the fall. Plants desired for indoor bloom in late spring may then be pruned back severely, potted in fresh soil, and kept in a cool greenhouse over winter. If new stock is wanted, prune the outdoor plants and pot them up in September and take cuttings from the new growth indoors. Give the young plants a fairly high temperature during their early growth. **Packet, 10c.**

ASSORTMENT OF COMMON AND RARE SORTS OF CACTUS SEED
Packet, 15c.

AFRICAN MARIGOLD

DOUBLE HOLLYHOCK

NICOTIANA

SCHIZANTHUS

PHLOX

BLUE MOON SCABIOSA

LOBELIA

RUSSELL LUPIN

CROWN OF GOLD MARIGOLD

MARIGOLD

are truly the amateur gardener's best friend. They are both hardy and colorful, which makes them ideal for all types of garden work. Blooms start early in July and continue until late fall.

These showy annuals may be raised by sowing seed in the open garden as soon as the soil is warm, but a more certain method of procuring fine plants is to sow the seed in flats or hot beds about the first of March.

Crown of Gold. Individual plants deviate very little from the average height of 24 inches. The lower branches are clustered near the ground level, while the higher branches are sub-opposite or alternate on the main stem. The plants are extremely floriferous, which gives to a plant in full bloom the appearance of a large orange top with a green base. **Packet, 10c.**

Sunset Giant. The very largest Marigold yet developed, blooms reach a size of 5 inches in diameter. The definite sweet scent of the flowers adds to its value as a cut flower, as well as being a good garden plant. The plants are extremely robust, producing a heavy growth of foliage, with 6 to 8 heavy branches each bearing 3 to 6 flowers. The plant grows from 3½ to 4 feet tall. **Packet, 10c.**

Harmony French Dwarf Double. The neat, dwarf, compact habit, combined with the extremely early, free flowering character of the plants make this new dwarf Harmony Hybrid one of the outstanding introductions of the season. Flowers are medium size, rather large for the French type, averaging 1¾ inches in diameter and do not have the strong Marigold odor. The color range includes the popular yellow and innumerable blotches and striped combinations of golden orange with maroon, and various shades of golden and lemon yellow with the contrasting dark maroon. Plants reach a height of 12 to 14 inches. **Packet, 10c.**

Guinea Gold. Flowers are gorgeous orange with loosely ruffled petals. The plants are free bloomers and practically all flowers are double. **Packet, 10c.**

Double Royal Scot. One of the most striking color combinations one could wish for. Plants grow from 24 to 30 inches in height. Color is a bold combination of mahogany and gold in symmetrical stripes. **Packet, 10c.**

Dwarf French Single. Diadem, mahogany red; Gold Star, yellow striped maroon; Legion of Honor, little brownies; Signata Pumila, very dwarf bright orange; Mixed colors. **Packet 10c.**

Yellow Supreme, an All America, Gold Medal winner. This lovely marigold is a companion flower to the Guinea Gold. Its delightful light lemon yellow blossoms are a welcome sight in any garden. The blooms are of a medium size, loosely ruffled and extremely free blooming. Grow to a height of 2 feet. **Packet, 10c.**

Signata Pumila Little Giant is the smallest Marigold yet developed. These dainty plants make an excellent border as their brilliant golden yellow flowers bloom profusely throughout the entire summer up until late fall. **Packet, 10c.**

Dwarf French Double. Golden Ball; Lemon Ball; Robert Beist, dark brownish maroon; Mixed Colors. **Packet, 10c.**

Tall African Double. Orange, Lemon and Mixed. **Packet, 10c.**

NICOTIANA

(Flowering Tobacco). (hA). These stately plants are very fine for background in an annual bed. Producing large, trumpet-shaped blooms until frost. Grow from 3 to 5 feet tall. **Crimson, White** and **Mixed. Packet, 10c.**

NEMOPHILA

Beautiful, dwarf-growing, hardy annual, bearing cup-shaped flowers in great abundance all through the season. The colors run mostly in shades of blue. **Choice Mixed. Packet, 10c.**

NIGELA

(Love-in-a-Mist). (hA). These showy, hardy annuals with unique flowers and finely cut foliage are easily grown from seed sown in outdoor beds. **Packet, 10c.**

SNAPDRAGON

IMPERIAL STOCK

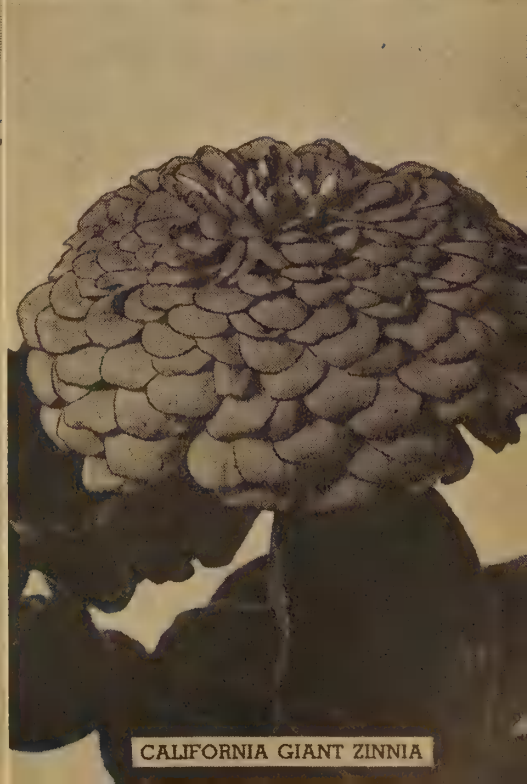
SWEET SULTAN

SWEET WILLIAM

DAHLIA FLOWERED ZINNIA

VERBENA

SCABIOSA



CALIFORNIA GIANT ZINNIA

ORIENTAL POPPY

NASTURTIUMS

Glorious Gleam. Color range: salmon, golden yellow, orange scarlet, cerise, cream, orange, maroon and crimson shades, as well as many spotted varieties. **Packet, 10c.**

Golden Gleam Nasturtiums are semi-dwarf, bearing the flowers well above the light green foliage on long, wiry stems. **Packet, 10c.**

Scarlet Gleam Nasturtiums are large and full petaled, waved and fluted in effect, and extremely showy. Richly sweet scented. **Packet, 10c.**

Mixed. For those who still prefer the good old fashioned type, we offer the dwarf mixed and tall mixed. **Packet, 5c.**

PHLOX DRUMMONDI

(A&P). Plants growing from 6 inches to 3 feet, according to type. Creeping and erect forms, smooth or pubescent. Leaves variable; salver-shaped flowers in bright colors, blooming in spring, summer, or early fall, according to kind. Perennial Phlox should be kept moist during the dry season, mulch with peat moss or leaf mold during winter and summer. Cut plants back after flowering season. Annual Phlox prefer a somewhat moist, light, porous soil. Goes well with Verbenas, Petunias, Gypsophila and Snapdragons. Varieties: **Chamois Rose,** carmine eye; **Crimson; Scarlet; White; Isabellina,** Dwarf Mixed; **Decussata,** Perennial Mixed Phlox. **Packet, 10c.**

PANSIES

(Viola Tricolor). (hA). A low-growing border and bedding plant, best with sun and moderate shade, blooming from March into fall. Seeds should be sown in late August for early blooming, in spring for late spring and summer blooming. Spring sown seeds should be planted in flats and transplanted just before blooms appear. Grouping—in separate bed or with Alyssum, Columbine, Yellow Snapdragons, Iceland Poppy, etc. Varieties: **P. S. C. Super Giant Swiss Mixed (20c); Oregon Giant Mixed; Adonis,** light blue with white center; **Cornflower Blue; Giant Dark Blue; Giant Striped; Golden Queen,** pure yellow; **King of the Blacks; Madam Perret,** dark wine pink with red frilled petals; **Snow Flake,** pure white; **Violet Blue,** dark blue; **Masterpiece,** giant ruffled. **Packet, 10c.**

PINKS

(Dianthus). (A&P). Grows from 10 to 14 inches high, and bears beautifully colored single and double blossoms in profusion all summer. For best results seed should be sown in flats and transplanted when soil is warm. Largely used for borders or massed in beds. Excellent for cut flowers. Grouping—can be planted in separate beds or with Snapdragons, Delphiniums, Stocks, Carnations, Sweet Williams and Petunias. Varieties: (Annuals) **Chinensis,** flowers produced in clusters, single and double mixed; **Heddewigi,** double; **Fire Ball,** scarlet; **Salmon King,** deep pink; **Snow Ball,** white; **Mixed.** (Perennial) **Clove Pinks, Pheasant's Eye,** single mixed; **Pheasant's Eye,** double mixed; **Single Mixed** and **Double Mixed. Packet, 10c.**

POPPY

(Papaver). (A&P). Flowers growing from 6 inches to 4 feet, according to type. Erect plants, with usually hispid, coarsely toothed, pinnafied leaves. Small to large globular, brightly colored flowers, blooming in spring and summer. Perennials are planted in fall and annuals in early spring. Grouping—Effective by themselves, or grouped in a mixed border with yellow and orange Snapdragons, Lobelia, tall, Violas, etc. Varieties: (Annuals) **Shirley,** double mixed; **Carnation Flowered,** tall double mixed; **American Legion,** single brilliant orange; **Flanders,** single blood red; **California Poppy** (Aurantiaca), orange. (Perennials) **Elmonte Tangerine,** orange; **Iceland; Stanford Giant Mixed; Oriental Mixed. Packet, 10c.**

PORTULACA

(Rose Moss). (hA). An exceptionally fine flower for dry sunny spots where most plants are unable to thrive. A dwarf plant only 6 inches in height and blooms profusely from early spring to late summer. Brilliant colors of : Red, yellow, pink, white, and striped. Sow seed indoors and transplant at early spring warmth. Varieties: **Single Mixed** and **Double Mixed. Packet, 10c.**

META SLUG BAIT
KILLS SLUGS AND SNAILS

PETUNIAS require a rich, light, well fertilized soil, however, the fertilizer should not be applied until after the plants are established, then use a good complete plant food. A liberal amount of peat moss or leaf mold, or both, should be worked into the bed before planting. When setting out transplants be careful to avoid the direct sun as tender Petunia plants wilt rapidly.

MINIATURE ROSE GEM PETUNIA

Martha Washington usners in an entirely new version. The plants are about 9 inches tall, in a perfect ball effect, actually covered with dozens of the delicately ruffled medium-sized flowers. The color itself is an interesting combination, blush pink at edges, deepening to dark violet in the throat, with heavy veining. It comes exceedingly true to color and type, and is excellent for use as a bedding, border or window box plant. **Packet 15c.**

Miniature Petunias Rose Gem and **Pink Gem.** These two charming types have filled a vacancy home gardeners have had for years. Where a low, solid bed of color is needed nothing does quite as well as these two varieties of miniature petunias. The plants are neat and compact, 5 to 6 inches in height and smothered with richly colored blossoms about 2 inches in diameter. Rose Gem (**15c**); Pink Gem (**10c**).

Giants of California are the largest of the single flowering petunias. The flowers are completely ruffled with large, graceful throats. Excellent in beds by themselves or grouped with Dwarf Lobelia. Mixed colord. **Packet, 10c.**

Dwarf Giants of California are a compact form of the above. Especially fine for potting and also go well in a bed with the taller variety. Light Blue, Dark Blue and Mixed Dark and Light. **Packet, 15c.**

Bedding Petunias: Balcony Blue; Balcony Rose; Balcony White; Rose of Heaven; Rosy Morn; Single Mixed. **All Packets, 10c.**

Taller Varieties: Elks Pride, deep purple, **25c;** Pride of Portland, pink, **25c;** General Dodds, blood red, **25c;** Dainty Lady, delicate golden yellow, **25c;** Double Choice Mixed, **25c;** Double Fringed Mixed, **35c;** Flaming Scarlet, **25c;** Burgundy, **25c.**

PHYSALIS (Chinese Lantern). These plants will add a bit of Oriental touch to your garden. Its lacquer red blooms have much gaiety and charm. If planted among Gypsophila (Baby Breath) you will have a beautiful growing bouquet. Variety: **Francheti. Packet, 10c.**

PRIMULA (Primrose). (hP). A favorite for growing outdoors in mild climates and very fine for potting, flower baskets and window boxes. Varieties: **Malacaides,** light lilac and mixed; **Kewensis,** golden yellow. **Packet, 10c.**

SALPIGLOSSIS (Painted Tongues). (hA). 1 to 2½ feet in height and should be planted in a sunny place. Erect plants, with oblong, wavy-toothed, dark green leaves. Large, tubular, velvety textured, lily-like flowers in bright and gaudy colors, blooming from early June into fall. Varieties: **Brown and Gold; Scarlet and Gold; Violet and Gold; Purple and Gold; Rose and Gold; Crimson and Gold; Yellow; Mixed. Packet, 10c.**

SALVIA (hA). 1 to 3 feet. Should be planted in a sunny location. Erect, branching plants, with variable leaves and irregular, tubular flowers, blooming in summer or fall. Varieties: **Bonfire,** clear red; **Splendens,** brilliant scarlet; **Zurich,** dwarf early mixed. **Packet, 10c.**

SCABIOSA (Pincushion Flower). (hA). 1½ to 3 feet tall. To be planted in sun or semi-shade. Bushy plants with divided foliage and dense heads of irregular flowers, blooming in spring, summer and fall according to type. Grows well in ordinary soils, but favors well fertilized, somewhat sandy loam. Grouping—combine with Ageratum, Snapdragon, Perennial Phlox, Sweet Williams and Stocks. Varieties: **Azure Fairy,** blue; **Peach Blossom; Fire King,** scarlet; **King of the Blacks; Loveliness,** pink; **Double Mixed; Blue Moon; Shasta White. Packet, 10c.**

RUST PROOF SNAPDRAGON

SNAPDRAGONS

Seed should be sown indoors in March or April. It may be slow in germinating, but after the true leaves have formed the growth is usually rapid. The small plants can be transplanted to the open as soon as danger of frost is over; they will flower from July until frost if the blossoms are picked as soon as they fade. Seed may also be planted in the open in August, and the seedlings transplanted to pots for winter bloom, or the plants can be covered with a mulch over winter to give earlier summer flowers.

To encourage the growth of flower-bearing side branches, the central bud should be pinched out when transplanting; followed by occasional pinching of other too-vigorous shoots, this will result in a compact oval plant covered with short racemes of flowers.

Rust, the most serious snapdragon disease, is found all over the United States on both greenhouse and outdoor plants. Dusty, chocolate-brown pustules (spore masses) are produced on the under side of the leaves and on the stems. Weekly applications of a good dusting sulphur during the rainy periods and fortnightly applications in dry weather will effectively control rust if a start is made early in the season. Keep sulphur off the flowers when in bloom. All Diamond Quality Snapdragons are of the newer Rust-Proof Strain and if Diamond Quality seed is used you need not worry about the rust disease.

Snapdragons may effectively be grouped with Scabiosa, Gladiolus, Larkspur, Delphinium, Clarkia and Chrysanthemum. Varieties: **Majus Rust Proof** varieties; **Butter Cup,** canary yellow; **Copper Shades; Pink Shades; Scarlet; Shasta White; Fiery Red** and **Mixed** colors. **Packet, 10c.**

SCHIZANTHUS

(Poor Man's Orchid or Butterfly Flower). (hA). Grows 1 to 1½ feet, and should be planted in sunny places. Erect, slender branched with bright green, finely divided leaves. Butterfly-like flowers that are varicolored and blotched in many colors. Seed should be sown in early spring in rich, well fertilized, sandy loam. Grouping—excellent in masses; for the mixed border, combining with Gypsophila, Virginia Blue Bells and Gerbera. **Brilliant Mixed. Packet, 10c.**

STOCKS

(Gillyflowers). (hA). Grows from 1 to 2½ feet tall, depending on type. Prefers sun with slight shade. Stiff and branching plants with smooth, bright green, oblong leaves. Blossoms are very fragrant, coming in small single or large double varieties, depending on type. Plant in well drained, rich, light loam; fertilize with complete plant food; pinch back young plants; plant close together, rogueing out single flowered plants later, if undesired. Use peat moss in preparing bed. Grouping—Very effective alone, or combined with Sweet Sultan, Violas and Pansies, Snapdragons, Daffodils, Tall Marigolds. Varieties: **Double Early Giant Imperial,** rose; **Elks Pride,** purple; **Canary Yellow; Blood Red; White** and **Mixed. Double Perfection Branching: Princess,** white; **La France,** pink; **Brilliant,** blood red; **Sapphire,** violet; **Creole,** canary yellow; **May Queen,** pale blue; **Rose Pink** and **Mixed. Virginia Stocks:** Rose, Mixed. **Evening Scented Stocks** Mixed. **Packet, 10c.**

SWEET WILLIAM

(Dianthus Barbatus. (hP). 10 to 20 inches in height. Prefers sun or light shade. Forming a dense mat of light to dark green, often colored leaves, and dense, round headed cymes of hairy-petaled, medium sized flowers, blooming over a long period. Their large color range makes them excellent for cut flowers. Grouping—Snapdragons, Delphiniums, Stocks, Carnations, Phlox and Petunias. Varieties: **New Port Pink; Scarlet Beauty,** orange red; **Dark Crimson; White; Single Mixed** and **Double Mixed. Packet, 10c.**

VERBENA

(hhP). Perennial, usually treated as an annual. Grows 6 to 8 inches, but exceedingly spreading. Requires plenty of sunshine. Densely branching, with dark green, wrinkled, dissected leaves. Dense cluster of medium sized, salver-shaped flowers. Blooming from May often into winter. Grouping—Fine border plant; in parkings; foreground of shrub border; in the mixed border, combining with Petunias, Shirley Poppies, rose and red Snapdragons and Stocks. Varieties: **Golden Queen,** golden yellow; **Scarlet Defiance,** orange red; Pink Shades; Blue Shades; White; Mixed. **Packet, 10c.**

WALL FLOWER

(Cheiranthus Cheiri). (hsP). Half shrubby perennial growing from 2 to 3 feet. Sun loving, but endures a little shade. Woody plant, with ribbed stem and dark green lanceolate leaves. Medium sized, mustard-like flowers in dense clusters. Grows in most types of soil but prefers well fertilized, light loam. Varieties: (Perennials) **Cheiranthus Cheiri,** yellow shades; **Siberian Wall Flower,** brilliant orange (for rock plants). (Annuals) **Blood Red; Paris Market,** brown; **Mixed; Double Early Wonder** Mixed. **Packet, 10c.**

SWEET PEAS

are essentially cool weather plants, and they quickly fade away if the temperature persists for long above 75°. In the sea-cooled areas of the Pacific Northwest, sweet peas can be grown successfully throughout the summer. An early start is highly important. The plants should be well established before hot weather arrives, but if the heat is extreme and persistent, nothing will keep the plants growing vigorously, though it is possible to carry the plants through July and even later if a cheese-cloth shading is erected over plants.

Sweet Pea seed is hard shelled, therefore better results can be obtained if the seed is soaked in water for a day or two before planting.

Dig a wide trench to a depth of 12 inches and after breaking up the bottom of trench fill in with several inches of peat or leaf mold to which add a liberal amount of bone meal; fill in the balance of the trench with good top soil. Tamp the soil down firmly and water thoroughly to the base. Let stand a few days until moderately moist. Never put the seed in too wet soil. Pulverize the surface well by raking, make rows and plant seed about one inch deep, and two inches apart. Do not water until all the seed is up at least half inch.

Thin out to at least six inches apart and train on wire or string netting when plants are five or six inches high. Applications of Vigoro during flowering period will add greatly to length of stems and size of blossoms. Keep well cultivated and water only as needed, as excessive moisture will cause the buds to drop. Treat seed with Nitragin.

AUSTIN FREDERICK IMPROVED

CHOICE MIXED SPENCERS
Packet, 10c. Ounce, 20c.

GIANT WAVED AND RUFFLED SPENCER SWEET PEAS
Packet, 10c. Ounce, 35c.

PINK AND CREAM

Ascot. Clear light rose pink. Very large blooms.
Mary Pickford. Cream pink, faintly tinted to salmon.
Pinkie. Large flowers in fours. A deep rose pink.
What Joy. Colorful primrose, shaded to soft cream.

RED AND MAROON

Charming. Brilliant blossoms of rose cerise.
Flamingo. Long stems. Flowers are orange scarlet.
Sybil Henshaw. Deep crimson flowers of giant size.
Welcome. The most dazzling of all scarlets. Strong stems.

ORANGE AND SALMON

Barbara. A beautiful shade of orange salmon.
Celebrity. Brilliant orange of exceptional quality.
Gloriosa. A dazzling, clear, bright orange scarlet.
Pirate Gold. A beautiful, mellow deep golden orange.
Tangerine Improved. Exquisite salmon orange.

LAVENDER, BLUE AND MAUVE

Austin Frederick Improved. Ruffled pure lavender.
Chieftain. A giant satiny mauve (deep lavender).
Fortune. A lovely rich, dark blue with long stems.
Gleneagles. One of the very best lavender blues.
Olympia. Giant ruffled flowers of rich purple.
Powerscourt. Clear pure lavender. Best lavender.
Reflection. A lovely sun-proof clear cornflower blue.

WHITE AND PICOTEE

Youth. Large pure white with margin of clear pink.
Avalanche. Glistening white of great substance.

SPECIAL SWEET PEA COLLECTION
NINE 10c PACKETS FOR 50c

EARLY FLOWERING SPENCERS
Packet, 10c; 1 ounce, 45c

Apollo. Extremely long stems. Soft salmon cerise.
Columbia. Rose standard with light pink wings.
Giant Rose. Truly the best rose-pink variety.
Harmony. Very popular clear lavender with large flowers.
Oriental. Clear deep cream with black seeded center.
Shirley Temple. Giant waved flowers of soft rose pink.
Snowstorm Improved. Giant clear white flowers.
Spring Song. Brilliant, bright rose-pink flushed salmon.
Vulcan. Vivid sun-proof scarlet. Most outstanding red.
White Harmony. Glistening pure white with vigorous stems.
Early Flowering Spencer Mixed. Well blended mixture.

FANTASY ZINNIA

ZINNIAS are of the easiest culture, thriving in almost all conditions. Natives of Mexico, they are happiest in hot, dry conditions characteristic of their land of origin.

For best results, provide a rich, deep soil and give water when needed. Giant types should be no closer than 18 inches apart. This allows free branching and sturdy plant development.

Fantasy Zinnia flowers are very informal in appearance, composed of a mass of shaggy, ray-like petals, which give a delicate, graceful effect, quite different from the stiff, formal Zinnias to which we are accustomed. Plants grow from 2½ to 3 feet tall. Blossoms are from 2½ to 3 inches in diameter. **Star Dust,** lovely golden yellow; **Mixed. Packet, 10c.**

Super Crown O'Gold Pastel Tints are the very finest large flowered Zinnia introduction in recent years. Strictly a mixture of pastel tints, a wide range of shades, including soft yellow, old gold, light pink, apricot pink, various shades of salmon, peach and buff, lively cerise salmon, as well as pure white and cream. The plants are strong and robust, growing about 3 feet tall, and flowers are borne profusely throughout the season. **Packet, 25c.**

Dahlia Flowered are strong and robust, growing about 3 feet tall and bear many long stems of showy, double, huge flowers. This type is preferred for general garden use, producing a very brilliant mass of color, in bright, intense shades. The flowers are more or less cup-shaped in appearance; the petals, instead of lying flat upon each other, are incurved, producing an upstanding, stiff, somewhat coarse flower. Flowers are from 4 to 5 inches in diameter. We offer the following varieties: **Exquisite,** light rose; **Golden State,** golden yellow; **Crimson Monarch,** deep crimson; **Dream,** rosy lavender; **Scarlet Flame; Oriole,** orange; **Meteor,** true red; **Polar Bear,** white; **Old Rose; Canary Bird; Purple Prince; Old Gold** and **Mixed. Packet, 10c.**

California Giant Strain is, in some ways, a companion type to the Dahlia Flowered. The plants are, however, taller than the Dahlia Flowered, reaching a height of 3½ to 4 feet, with longer, strong stems which are particularly adapted for use as a cut flower. We offer the following types: **Cerise Queen; Lavender Gem; Rose Queen; Violet Queen; Grenadier,** dark red; **Golden Queen; Daffodil,** canary yellow; **Orange Scarlet Queen; Purity,** white; **Enchantress,** light rose; **Mixed. Packet, 10c.**

Lilliput or **Pompon Zinnia** is among the most popular for cut flower and border use. The flowers are small, compact and symmetrical in shape, 1 to 1½ inches in diameter, borne in great quantities on neat, compact growing plants which usually reach a height of from 12 to 15 inches. We offer the following varieties: **Salmon Rose; Canary Yellow; Rosebud; Scarlet Gem; Crimson Gem; Golden Gem; Lilac Gem; White Gem; Pink Gem** and **Mixed.**
Packet, 10c.

Mexican Dwarf Zinnia is by far the finest dwarf type Zinnia yet developed. The sturdy plants reach a height of not over 1 to 1½ feet and are litterally covered with blooms throughout the entire summer. A wide range of strikingly different colors make them outstanding in any flower bed. All sorts of reds, yellows and oranges blended with maroon, mahogany, rust or white. Every individual blossom is an interesting study in itself. **Packet, 10c.**

Elegens Dwarf Zinnia is not a new type but not generally known by most gardeners. This variety is excellent for border use and can be used most effectively in a solid bed where lot of color is desired in low growing plants. These Zinnias bloom from early summer until late fall and are fine for cut flowers. We offer the following varieties: **Pink, Crimson, White, Salmon, Golden Orange** and **Mixed colors.**
Packet, 10c.

THUNBERGIA (Black-eyed Susan). A twining perennial which will reach a height of 8 feet, often grown as an annual in greenhouses. When grown out-doors the plant blooms late in summer and is excellent for fence coverings. **Packet, 10c.**

SWEET SULTAN is a very attractive hardy annual. The flowers are well adapted for cutting and retain their freshness in water for a long period. Sow in the open ground in March or April or May, or in September for early flowers. **Giant Mixed. Packet, 10c.**

OTHER VARIETIES OF ANNUALS.

Acrolinium (Everlasting Straw Flower). Double mixed.

Balloon Vine (Love in a Puff). Fine climber, white blossoms, bears pods.

Balsam (Lady Slipper). Double blossoms, pink, scarlet and mixed. 2 feet.

Browallia (Amethyst). Excellent for window boxes. Mixed colors.

Brachyome (Swan River Daisy). Mixed colors.

Bartonia (Blazing Star). Beautiful golden yellow. 3 feet.

Canary Bird Vine. Climber with lovely yellow blossoms

Cardinal Climber. Strong, rapid climber with blazing red flowers.

Cypress Vine (Ipomoea Quamoclit). Fern-like foliage, scarlet or mixed.

Celosia Cristata (Cockscomb). Crimson and mixed.

Celosia Plumosa (Cockscomb, Feathery Type). Red, yellow and mixed.

Chinese Wool Flower (Celosia Childsii). Crimson.

Cut Flower Mixture, (5c.) A mixture of easy growing annuals. Assorted colors.

Everlasting Flowers. Mixed varieties and colors.

Euphorbia (Annual Poinsettia).

Euphorbia Variegated (Snow on the Mountain). Heterophylla.

Evening Primrose (Biennial). Yellow shades for rockery or border.

Hunnemannia (Mexican Tulip Poppy). Yellow.

Hyancith Bean (Dolichos Lablab). Purple and white blooms. Climber.

Heliotrope (Garden). Blue and mixed colors.

Humulus (Japanese Hop). White climber.

Helianthus (Sunflower). Double mixed, dwarf yellow chrysanthemum flowered.

Ice Plant. Trailing for vases and rock work.

Job's Tears. Produces little sprays. 12 inches.

Kochia Childsii (Mexican Fire Bush). Green foliage turning to fiery red.

Lantana. Verbena-like clusters of flowers. 2 feet.

Mimulus Moschatus (Musk Plant). Grows 6 inches.

Moon Flower. White fragrant climber; night bloomer.

Mimosa (Sensative Plant). Small lilac blossoms.

Nemesia (Nana Compacta). Blue, scarlet, orange and mixed.

Passiflora (Passion Flower). Mixed colors.

Poppy (King Edward). Single scarlet.

Poppy (Shirley). Single mixed.

Poppy (Paeony Flowered). Plain edged mixed.

Poppy (Tulip). Deep scarlet.

Smilax.

Statice Sinuata. Blue, white, lavender, yellow, rose and mixed.

Strawflower (Everlasting). Mixed.

Sweet Sultan. Lavender, white, lilac, red, yellow.

Wild Cucumber. Rambling vine. Mixed.

OTHER VARIETIES OF PERENNIALS.

Arabis (Rock Cress). White rock plant.

Anchusa (See Bugloss). Blue flowers growing 6 feet.

Ampelopsis (Virginia Creeper). Fine climber.

Ampelopsis (Boston Ivy). Shiny green leaves.

Anemone (Wind Flower). St. Brigid. Double mixed.

Antignon (Mountain Rose Coral Bells).

Armeria (Sea Pink). Lilac rose; rock plant.

Agrostemma (Rose of Heaven). Crimson. 12 inches.

Asparagus Plumosus (Asparagus Fern). House plant.

Asparagus Sprengeri (Emerald Feather). House plant.

Begonia (Wax Flower). Rose and bronze foliage.

Cineraria. Semi-dwarf (**25c.**); Star Flower Mixed (**25c.**); Ordinary Mixed (**15c.**).

Canna. A greenhouse plant.

Cerastium Tomentasum (Snow in the Summer). White flowers.

Cobea Scandens (Cathedral Bells). Blue mixed.

Coleus. Greenhouse plant, mixed colors (**15c.**).

Cheiranthus (Siberian Wall Flower). Brilliant orange.

Dahlia (Coltness Mignon). Mixed bedding; double mixed; single mixed.

Daisy (Bellis Monstrosa). (English Daisy). Double red, rose, white and mixed.

Gerbera (Transvaal Daisy). Mixed colors (**15c.**).

Geranium. Zonale mixed; Lady Washington (**15c.**).

Heuchera (Coral Bells). Crimson color (**15c.**).

Kudzu Vine (Jack and the Bean Stalk). Climber.

Nepeta (Gray Catmint). Blue color.

Pyrethrum. Golden Feather.

Pyrethrum. Deep scarlet.

Pentstemon (Beard Tongue). Mixed colors.

Rock Garden Mixture. Wide variety of color.

Silene (Catchfly). Mixed.

Statice Latifolia. Perennial Blue.

Sweet Peas (Perennial). Red, Pink Beauty, White, Mixed. **Packet, 10c.**

Sweet Rocket. White mixed.

Thumbergia (Black Eyed Susan). Mised shades.

Tritoma (Red Hot Poker). Brilliant red blossoms.

Viola Jersey Gem. Apricot, yellow (**25c.**); Mixed (**10c.**).

Violet. Beautiful blue.

Valeriana. Red and mixed colors.

PEST CONTROL CHART

Use Sprays and Dusts For Healthy Flowers and Vegetables

Plants	Description of Injury, Insect or Disease	Insect or Disease	Spray or Dust	How and When to Apply
FLOWERS Aster Begonia Calendula Canna Camellia Carnation Chinese Lantern Cineraria Coleus Cosmos Chrysanthemum Dahlia Daisy Delphinium Fern Foxglove Fuchsia Gardenia Geranium Golden-Glow Gladiolus Hibiscus Hollyhock Lantana Morning-Glory Nasturtium Pansy Peony Petunia Phlox Primula Rose Snapdragon Sweet Pea Violet Zinnia	Aphids are small soft-bodied sucking insects 1/10 inch long, clustered together on flowers, leaves and stems.	Aphid Thrips Leafhopper	Aphis Spray Black Leaf 40 Evergreen Rotenone Garden Guard Ortho Extrax Red Arrow	Spray thoroughly, make sure to hit the insects to be controlled; repeat sprays every few days.
	Tiny black or yellowish elongated winged or wingless insects. Thrips rasp flowers and leaves, causing them to brown and die.			The nicotine only is effective against these insects. Be sure to hit the insects with it. The powder can be added according to directions to control any chewing insects or blight which may be present.
	Leafhoppers are wedgeshaped insects ⅛—⅜ inch long, winged or wingless; rear legs are very long. When disturbed they walk sideways.			
	Beetles are hard-shelled insects of various colors and sizes which eat into or entirely consume leaves and flowers.	Beetle Slug Caterpillar	Emo-Nik Black Leaf 40 Aphis Spray	Spray upon insects. Be sure to hit them.
	Slugs are soft-bodied, slimy and legless. They rasp away upper leaf surfaces or eat holes in them.			Apply a heavy spray upon insects and entire plant; both nicotine and powder are effective.
	Caterpillars are fuzzy or hairless worm-like insects eating away at buds, flowers and foliage. They may occur singly or in colonies rolling leaves together or spinning webs.			Broadcast the dust over the insects and plant from shaker carton or hand duster.
	Cutworms pierce or cut off leaves or main stem of seedlings near the ground line.	Cutworms Sowbug Slug Grasshopper	Diamond Naphthalene Flakes Meta Snarol	Spread a thin band of Bait-M on the ground around the plant to be protected. For larger area spread small windrows criss-cross over like a checkerboard with two foot squares, or broadcast.
	Sowbugs are dark grey oval-shaped, 14 legged creatures ½ inch long; if disturbed they curl up like a pill. Sowbugs feed upon seedlings and tender plants.			
	Slugs are soft-bodied, slimy and legless, rasping away at upper leaf surfaces or eating out holes.			
	Rust is a disease that causes leaves or stems to be rusty brown or yellowish, in streaks or in patches.	Rust Mildew Leafspot	M-R-S Dusting Sulphur Garden Sulphur Kopper Queen Greenleaf	Scatter about on plant, thoroughly cover all parts. Repeat every 10 days. Nicotine also can be added to control certain insects.
	Mildew shows powdery or felt-like patches on leaves and stems, causing leaves to curl up and drop.			Dust from shaker carton or hand duster over entire foliage, completely covering all leaves. Repeat before rain periods or every few days.
	Leafspot is the cause of small spots on leaves or masses of spots, usually brown. Sometimes centers of spots fall out leaving leaf-holes.			
	Ants are six-legged insects familiar to all.	Ant	Ant-Kill (several good brands)	Ant-Kill is effective against sweet-eating varieties of ants. For grease ants put bacon rind with syrup.
FRUIT TREES Apple Pear Peach Plum Cherry	Several kinds of scale on bark, leaves or fruit; vary in color from white to red; size, from nearly invisible to ¼ inch in diameter.	Oyster-shell San Jose and Scurfy Scale	Dry Lime Sulfur Emo-Nik Kleen-up Spray	Spray during period plant is dormant, best in spring before buds swell, apply when temperature is above freezing.
	Numerous red, green, black soft-bodied sucking insects massed together on stems and twigs 1/12 inch long, winged or wingless.	Green Apple Rosy and other Aphids	Nicotine Sulphate Dry Lime Sulfur	1. First spray, before buds turn green. 2. Delayed dormant, when leaves are ¼—½ inch long.
	Leaves of apple and pear disfigured by small brown to red blisters. Leaves shed prematurely.	Pear Leaf Blister Mite	Dry Lime Sulfur	Apply in spring before buds open. California—Apply in fall when crop is off.
	Wedge-shaped insects ⅛ to ⅓ inch long, winged or wingless. When disturbed they walk sidewise.	Leafhoppers	Aphis Spray Red Arrow	Summer spray, spray when lice are numerous.
			Nicotine Sulphate Spray Soap	Apply spray when young insects become numerous.
	Core of fruit wormy, worm ¾ inch long, pink, with brown head. Fruit is shed before ripened.	Codling Moth	Arsenate of Lead	1. When most petals have fallen. 2. Respray 14 days later. 3. 21 days later. 3. 28 days later. Spray second brood when fresh worm injury is seen.
	Leaf-eating caterpillars.	Tent Caterpillars	Arsenate of Lead	Spray whenever insects make their appearance.
	Red or brown spotted leaves shed prematurely; tiny red spiders and thread tangles on under leaf surface.	Red Spider	Emo-Nik Volk Red Arrow	Apply when spiders become numerous or when foliage becomes brown or spotted.
	Olive spotted, lopsided fruit showing crackings. Spots also on leaves and stems. Fruit spots characterized by light colored rings.	Scab Lead Spot	Dry Lime Sulfur	1. Delayed dormant when buds show green. 2. Before buds show pink.
	Olive-black patches on fruit, or masses of them.	Blotch	Bordeaux Mixture	Add to midsummer sprays for codling moth.
	Paint pruning scars and other wounds to prevent entrance of fungi.		Kopper Shield Paint	Apply with brush as it comes in the package.
	Insects crawling up trunks for feeding and egg laying purposes.	Canker-worms Wingless Gypsy Moth Ants	Stop, Deadline Tree Tanglefoot	Encircle the entire tree trunk with a band 1½″ to 3″ wide, using putty knife, paddle, or spread with fingers. Spring and Fall.

PEST CONTROL CHART

Use Sprays and Dusts For Healthy Flowers and Vegetables

Plants	Description of Injury, Insect or Disease	Insect or Disease	Spray or Dust	How and When to Apply
VINES AND SHRUBS Honeysuckle Lilac Cedar Snowball Privet Hydrangea Spirea Grape Ivy Virginia Creeper	Rust is a disease that causes leaves or stems to be rusty brown or yellowish, in streaks or in patches.	Rust Mildew Leafspot	M-R-S Dusting Sulphur Kopper Queen Greenleaf	Spray thoroughly on plant, covering all parts. Repeat every 10 days. Nicotine also can be added to control certain insects.
	Mildew shows powdery or felt-like patches on leaves and stems cause leaves to curl up and drop.			Dust from shaker carton or hand duster over entire foliage, completely covering all leaves. Repeat before rain periods and every few days.
	Leafspot is the cause of small spots on leaves or masses of spots, usually brown. Sometimes centers of spots fall out leaving leaf-holes.			
VEGETABLES AND BERRIES Spinach Celery Beets Cabbage Cauliflower Melon Pepper Tomato Potatoes Currant Gooseberry Blackberry Raspberry	Ahipds are small soft-bodied sucking insects 1/10 inch long, clustered together on stems and leaves.	Ahpis Leafhopper	Aphis Spray Black Leaf 40 Evergreen Roterone Garden Guard Ortho Extrax Red Arrow	Spray on the insects, often. Spray on the under side of leaves until all insects are drenched.
	Leafhoppers are wedgeshaped insects 1/8—3/8 inch long, winged or wingless; rear legs are very long. When disturbed they walk sideways.			The nicotine only is effective against these insects. Be sure to hit the insect with it. The powder can be added according to directions to control any chewing insects or blight which may be present.
	Beetles are hard-shelled insects of various colors and sizes which eat into or entirely consume leaves and flowers.	Beetle Slug Caterpillar	Aphis Spray Evergreen Naphthalene Meta Garden Guard	Spray thoroughly, make sure to hit the insects to be controlled; repeat sprays every few days.
	Slugs are soft-bodied, slimy and legless. They rasp away upper leaf surfaces or eat holes in them.			Apply a heavy spray gun upon insects and entire plant.
	Caterpillars are fuzzy or hairless worm-like insects eating away at buds, flowers and foliage. They may occur singly or in colonies rolling leaves together or spinning webs.			Non-poisonous to humans—safe on edibles. Broadcast the dust over the insects and plant.
	Cutworms pierce or cut off leaves or main stem of seedlings near the ground line.	Cutworms Slugs Grasshoppers	Meta Snarol Bait-M Naphthalene	Spread a thin band of Bait-M on the ground around the plant to be protected. For larger area spread small windrows criss-cross over like a checkerboard with two foot squares, or broadcast.
	Slugs are soft-bodied, slimy and legless, rasping away at upper leaf surfaces or eating out holes.			
	Leaves have minute silken threads and webs on undersides, in which are tiny red spiders. Leaves become speckled, brown and drop off.	Red Spider Mite	Emo-Nik Evergreen Red Arrow	Spray on pests and on under leaf surfaces; repeat weekly.
				Dust thoroughly from sifter carton or hand duster, getting dust into places where red spiders are feeding; repeat frequently.
	Rust is a disease that causes leaves or stems to be rusty brown or yellowish, in streaks or patches.	Rust Mildew Leafspot Blight	Kopper Queen Dusting Sulphur Greenleaf	Spray thoroughly on plant, covering all parts. Repeat every 10 days. Nicotine also can be added to control certain insects.
	Powdery or felt-like patches on leaves and stems cause leaves to curl and drop.—Mildew.			Dust from sifter carton or hand duster over entire foliage, completely covering all leaves. Repeat before rain periods and every few days.
	Leafspot is the cause of small spots on leaves or masses of spots, usually brown. Sometimes centers of spots fall out leaving leaf-holes.			
SHADE TREES Ash Beech Birch Box Elder Catalpa Chestnut Elm Hickory Locust Maple Oak Sycamore	Numerous soft-bodied sucking insects (aphids) 1/10 inch long, clustered together on twigs and leaves.	Aphid	Aphis Spray, Black Leaf 40, Evergreen, Emo-Nik, Garden Volk, Garden Guard,	Spray thoroughly, make sure to hit the insects to be controlled; repeat sprays every few days.
	Bright red or red bordered insects, winged or wingless. Box-Elder plant-bugs suck sap from tree shoots and leaf stems.	Box-Elder Plant Bugs	Emo Emo-Nik Garden Volk	Spray thoroughly, make sure to hit the insects to be controlled; repeat sprays every few days.
	Very small scales varying in size from nearly visible to 1/8 inch long, found on leaves, twigs and bark.	Scale	Dry Lime-Sulphur Emo	Dormant spray (early in spring). Lime Sulfur discolors painted surface.
				Dormant spray (early in spring).
	Caterpillars are hairy or hairless worm-like insects which eat holes in foliage.	Caterpillar	Arsenate of Lead	Spray the trees just before the spring leaves attain mature growth, repeat when necessary.
	Hard-shelled oval or oblong shaped insects eating holes in leaves or partly consuming them.	Beetles		
EVERGREENS Arbor Vitae Balsam Cedar Hemlock Larch Pine Spruce	Numerous soft-bodied sucking insects (aphids) 1/10 inch long, clustered together on twigs and needles.	Aphid	Same as other Aphis Control	Dormant spray (early spring).
				Growth spray (summer).
	Very small scales vary in size and color. They are found in masses about needles.	Scale	Emo	Dormant spray (early in spring).
	Tiny mites cause minute spider web tangles about leaves causing them to dry up and the tree to die.	Red Spider	Emo-Nik Evergreen	Apply forcefully with a good power spray. Repeat frequently in 5 days intervals.
	Worms that eat needles at the base, causing needles to drop out; or needles become gnawed and killed.	Caterpillar	Arsenate of Lead	Spray the infested area, often.

CONSULT YOUR LOCAL DEALER OR COUNTY AGENT

VEGETABLE SEED PLANTING CHART

KIND OF SEED	Time to Plant Outdoors	Distance for Plants		SEED REQUIRED		Ready to Use
		Bet. Rows	In the Row	Row	Acre	
Asparagus	February to April	5 to 6 ft.	18 to 24 in.	1 oz. to 40 ft.	2 to 3 lbs.	2nd Spring.
Beans, Bush	April, May and June	2 to 3 ft.	3 to 4 in.	1 lb. to 250 ft.	90 to 100 lbs.	40 to 65 days.
Beans, Pole	April, May and June	4 ft.	2½ to 3 ft.	1 lb. to 125 hills	30 to 40 lbs.	70 to 90 days.
Beans, Lima	May and June	2 to 4 ft.	10 to 36 in.	1 lb. to 80 hills	50 to 60 lbs.	90 to 130 days.
Beets, Table	March to July	14 to 20 in.	2 to 4 in.	1 oz. to 100 ft.	10 to 15 lbs.	45 to 60 days.
Broccoli*	June to August	24 to 30 in.	14 to 18 in.	1 oz. to 1500 plants	6 to 8 oz.	120 to 150 days.
Brussel Sprouts*	April to June	30 to 36 in.	18 to 24 in.	1 oz. to 2000 plants	6 to 7 oz.	100 to 120 days.
Cabbage, Early*	February to April	30 to 36 in.	16 to 24 in.	1 oz. to 2000 plants	6 to 8 oz.	90 to 110 days.
Cabbage, Late*	May and June	36 to 42 in.	24 to 30 in.	1 oz. to 2000 plants	6 to 7 oz.	110 to 120 days.
Carrots	April to July	12 to 24 in.	2 to 3 in.	1 oz. to 250 ft.	3 to 4 lbs.	55 to 80 days.
Cauliflower*	March to June	3 to 4 ft.	24 to 30 in.	1 oz. to 1500 plants	6 to 7 oz.	95 to 110 days.
Celery*	April to July	18 to 36 in.	6 to 10 in.	1 oz. to 8000 plants	4 to 5 oz.	120 to 150 days.
Chicory	March to May, Sept.	16 to 20 in.	6 to 8 in.	1 oz. to 200 ft.	3 to 4 lbs.	90 to 120 days.
Chives	April and May	12 to 18 in.	4 to 6 in.	1 oz. to 200 ft.	4 to 5 lbs.	125 to 150 days.
Sweet Corn	April to June	36 to 42 in.	9 to 12 in.	1 lb. to 100 hills	12 to 15 lbs.	55 to 90 days.
Cress	Feb. to May, Sept.	12 to 18 in.	4 to 6 in.	1 oz. to 250 ft.	3 to 4 lbs.	45 to 60 days.
Cucumber	April to July	4 to 6 ft.	10 to 12 in.	1 oz. to 100 hills	2 to 3 lbs.	50 to 75 days.
Egg Plant*	April and May	24 to 30 in.	18 to 24 in.	1 oz. to 1500 plants	4 to 5 oz.	125 to 140 days.
Endive	May and June	18 to 20 in.	10 to 12 in.	1 oz. to 300 ft.	3 to 4 lbs.	90 to 100 days.
Herbs, Annual	March and April	20 to 24 in.	10 to 12 in.	1 oz. to 200 to 600 ft.	3 to 10 lbs.	125 to 150 days.
Herbs, Perennial	April to June	20 to 24 in.	10 to 12 in.	1 oz. to 200 to 600 ft.	3 to 10 lbs.	Next Season.
Kale	Mar. and Apr., Aug.	18 to 24 in.	12 to 18 in.	1 oz. to 2000 plants	6 to 8 oz.	55 to 60 days.
Kohl Rabi	March to May	16 to 24 in.	6 to 8 in.	1 oz. to 300 ft.	3 to 4 lbs.	50 to 70 days.
Leek	May to June	14 to 20 in.	4 to 6 in.	1 oz. to 150 ft.	4 to 5 lbs.	120 to 150 days.
Lettuce, Leaf	March to September	12 to 18 in.	4 to 6 in.	1 oz. to 600 ft.	4 to 5 lbs.	40 to 70 days.
Lettuce, Head	February to August	12 to 16 in.	12 to 14 in.	1 oz. to 3000 plants	1 to 1½ lbs.	70 to 90 days.
Muskmelon	April to June	6 to 8 ft.	4 to 6 ft.	1 oz. to 40 hills	3 to 5 lbs.	90 to 150 days.
Watermelon	May and June	8 to 12 ft.	6 to 10 ft.	1 oz. to 25 hills	4 to 6 lbs.	100 to 160 days.
Mustard	March to May, Sept.	12 to 18 in.	2 to 3 in.	1 oz. to 600 ft.	4 to 5 lbs.	60 to 90 days.
Okra*	April and May	2½ to 3 ft.	18 to 24 in.	1 oz. to 250 plants	5 to 6 lbs.	70 to 90 days.
Onion, Seed	April and May	12 to 18 in.	2 to 4 in.	1 oz. to 200 ft.	4 to 5 lbs.	125 to 150 days.
Onion, Sets	October to May	12 to 18 in.	2 to 3 in.	1 lb. to 50 ft.	2 to 3 sacks.	50 to 70 days.
Parsley	March to May, Sept.	18 to 24 in.	12 to 16 in.	1 oz. to 250 ft.	3 to 4 lbs.	65 to 90 days.
Parsnip	April to June	15 to 20 in.	2 to 4 in.	1 oz. to 300 ft.	4 to 6 lbs.	130 to 145 days.
Peas, Dwarf	Nov. & Feb. to June	18 to 24 in.	1 to 2 in.	1 lb. to 120 ft.	150 to 175 lbs.	45 to 75 days.
Peas, Tall	Nov. & Feb. to June	4 to 6 ft.	1 to 2 in.	1 lb. to 120 ft.	100 to 125 lbs.	60 to 90 days.
Pepper*	May and June	18 to 24 in.	14 to 16 in.	1 oz. to 1500 plants	3 to 4 oz.	130 to 150 days.
Potatoes, Irish	March to June	24 to 36 in.	14 to 18 in.	1 lb. to 15 ft.	7 to 9 sacks.	90 to 150 days.
Pumpkin	May to July	8 to 12 ft.	6 to 8 ft.	1 oz. to 30 hills	4 to 5 lbs.	75 to 90 days.
Radish	February to Sept.	12 to 18 in.	1 to 2 in.	1 oz. to 100 ft.	8 to 10 lbs.	20 to 75 days.
Rhubarb	March to June	30 to 36 in.	16 to 24 in.	1 oz. to 250 ft.	6 to 8 oz.	3rd Year.
Rutabaga	May and June	18 to 24 in.	6 to 8 in.	1 oz. to 400 ft.	2 to 3 lbs.	90 to 120 days.
Salsify	March to May	18 to 24 in.	2 to 4 in.	1 oz. to 120 ft.	8 to 10 lbs.	120 to 150 days.
Spinach	Feb. to May, Sept.	12 to 18 in.	3 to 6 in.	1 oz. to 100 ft.	10 to 12 lbs.	45 to 60 days.
Squash, Bush	April to June	3 to 4 ft.	3 to 4 ft.	1 oz. to 30 hills	4 to 6 lbs.	65 to 70 days.
Squash, Winter	May to July	10 to 12 ft.	8 to 10 ft.	1 oz. to 15 hills	3 to 4 lbs.	120 to 140 days.
Swiss Chard	March to July	12 to 18 in.	4 to 8 in.	1 oz. to 150 ft.	6 to 8 lbs.	45 to 60 days.
Tomato*	April to June	3 to 4 ft.	2 to 3 ft.	1 oz. to 3000 plants	3 to 4 oz.	125 to 150 days.
Turnip	March to August	12 to 15 in.	3 to 4 in.	1 oz. to 400 ft.	2 to 4 lbs.	45 to 90 days.

* Planting dates shown for crops marked "*" are intended to be for setting plants into the garden. Seeds should be sown 40 to 60 days earlier, indoors or under glass.

Seed should be covered from three to five times its diameter. Press down firmly. Keep moist continuously.

The above chart gives distances between rows for hand cultivation; where horse or tractor is used the rows should be farther apart.

ARTICHOKES Sow early in March and transplant when warm, in rows 4 feet apart in the rows. Cut the tops off in winter and protect with a heavy covering of straw, leaves or peat moss. The first season will yield only a partial crop. The second year, thin the shoots to three of the best, and these will begin to form heads early in summer. **Giant Green Globe.**

Packet, 10c; Ounce, 75c.

ASPARAGUS may be grown in almost any soil, but succeeds best in rich, sandy friable loam with good under drainage. Avoid planting near trees or tall shrubs, because of the shade and heavy draft on the fertility of the ground. **Giant Washington; Mary Washington.**

Packet, 5c; Ounce, 15c.

BEANS

This vegetable is classified into two groups, the dwarf or bush variety and the pole or climbing type. These two groups are again divided into two distinct types, the green podded varieties and the wax or yellow podded varieties.

Nearly all of the Bush varieties are ten to twelve days earlier than the Pole types which make them a favorite among the home and market gardeners. Also it is not necessary to stake this type because of their low growing habits.

Beans will not stand frost and should not be planted until two weeks after the last killing frost. It takes approximately 1 pound of seed for a row 100 feet long and should be planted in hills approximately three or four seed to the hill. For the most tender and delicious beans they should be picked when about two-thirds grown.

For a succession of crops, plant every ten days or two weeks until about the first of August. Seed sown after this time will probably be caught by early frosts. Bush varieties mature from forty-five to seventy days depending on the heat. Pole varieties, seventy-five to eighty days.

Cultivate frequently but never do this in the early morning or just after a rain as bean foliage is very susceptible to disease which is easily spread when the vines contain an over abundance of moisture.

KENTUCKY WONDER GREENPOD

LIMA BEANS

Oregon Pole Lima. Proven over many years to be well adapted to our cool northwest climate. Strong, vigorous grower, bearing continuously until frost, pods best when turning yellow.
Other varieties **Burpee Bush Lima, Henderson Bush Lima.**

GREENPOD POLE VARIETIES

Oregon Giant Greenpod. Keeps producing until killed by frost. Large fleshy pods 10 to 12 inches in length, stringless, light greenish yellow splashed with red.

Kentucky Wonder Greenpod. Pods are very fleshy, saddle back, fine grained and stringless. Exceedingly early and prolific. Average 8 to 10 inches in length and are light green.

Blue Lake. The popularity of this variety is rapidly increasing here in the Northwest. Its growing habits are well adapted to our soil and climatic conditions. This variety produces bountifully and are being used greatly by canners.

WAXPOD POLE VARIETY

Kentucky Wonder Wax the earliest of all wax varieties. This pole bean starts bearing when scarcely higher than a bush bean and continues until frost. The pods are fleshy, long, crumbled and of creamy yellow color.

GREENPOD BUSH VARIETIES

Burpee Stringless Greenpod. By far the best of the bush varieties, exceedingly early and a very heavy producer. Pods five to six inches long, round and exceedingly fleshy, absolutely stringless and tastiest of all beans.

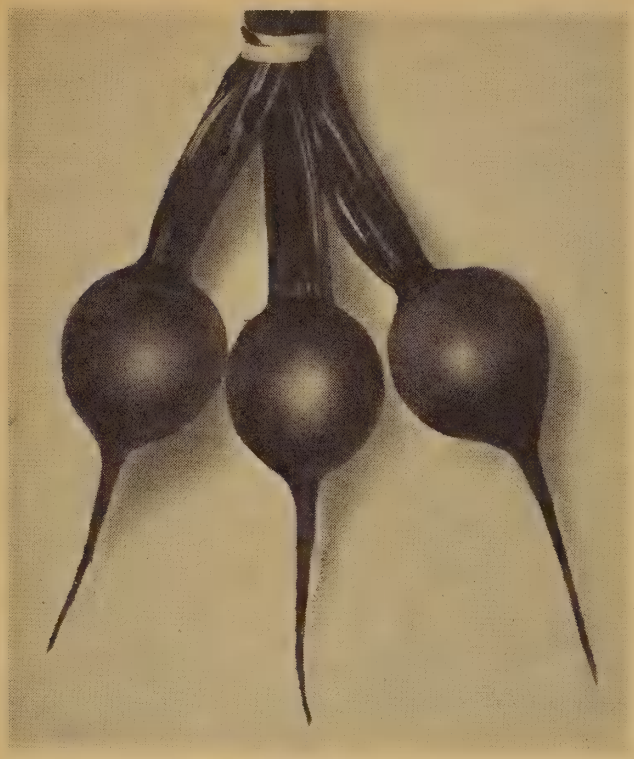
Stringless Black Valentine. The pods are very fleshy, round and saddle back. Produces a large crop of tender beans.
Other varieties—**Dwarf Horticultural** or **Cranberry, Stringless Refugee, Tender Green** and **Little Navy.**

WAXPOD BUSH VARIETIES

Improved Golden Wax. Vigorous and highly productive, this bean reaches table condition in fifty days. Pods are a deep golden yellow about five inches in length.

Davis Wax. The pods are long, rust resistant and very tender. The dry white kidney-shaped beans are excellent for baking.
Other varieties—**Pencil Pod Black Wax, Brittle Wax** and **Prolific Black Wax.**

TREAT BEAN SEED WITH
GARDEN NITRAGIN.
IT WILL PRODUCE A BETTER CROP.



DETROIT DARK RED BEETS

BEETS

This is one of the easiest vegetables to grow. They do exceedingly well in almost any kind of garden soil but prefer a rich sandy loam that is easily worked. They are exceedingly rich feeders, so the soil must be well fertilized in order to get the quickest growth necessary for tender juicy beets. Slow growth means tough roots.

It is always a good idea to sow beet seed thickly and then thin out plants to allow proper root development. When plants are about four inches high thin to two inches apart if you want many small roots and to five and one-half inches if you desire fewer but larger beets.

Make the rows 12 inches apart if you cultivate with a hoe or wheel hoe. Cultivate deeply and often at first but carefully so the young seedlings will not be disturbed.

P. S. C. Market Gardener. Extra early and remarkable for its fine quality and rapid growth. The tops are small, the roots are deep red, globe shaped and the flesh is of dark red variety. It is preferred by market gardeners because it matures evenly, stands long and does not split. **Packet, 5c; ounce, 10c; ¼ pound, 35c; 1 pound, $1.00.**

Detroit Dark Red. Due to its uniformity in size and smooth, handsome appearance it is a very popular variety with commercial growers as well as home gardeners. Roots are deep red, globe shaped with small tap root. This variety is entirely free of white rings and retains its tasty flavor after it grows to full size. Excellent for pickling. **Packet, 5c; ounce, 10c; ¼ pound, 35c; 1 pound, $1.00.**

Early Blood Turnip Beet. An improved variety over the blood turnip type. Tops are large, roots dark red and nearly round. Flesh deep red with lighter zoning, sweet crisp and tender. These beets are recommended for summer and fall use. **Packet, 5c; ounce, 10c; ¼ pound, 35c; 1 pound, $1.00.**

Extra early Egyptian. One of the best for forcing. Tops are small the roots are dark red and flat on the bottom with a very small tap root. **Packet, 5c; ounce, 10c; ¼ pound, 35c; 1 pound, $1.00.**
Other varieties—**Crosby Egyptian** and **Early Wonder.**

MANGEL WURZEL

Seed should be sown at the rate of 5 to 6 pounds per acre and thinned to 10 inches apart in rows.

Mangels should be planted early in the spring in rows 2½ feet apart, the seed should be 1 inch apart in the rows and covered by 1½ inches of soil firmly pressed down. When plants are 3 inches high begin to thin until roots are 10 inches apart. One ounce of seed plants approximately 100 feet and 5 pounds to the acre.

P. S. C. Heavy Cropper. One of the largest Yellow Mangels easily pulled as it grows two-thirds above the ground. We highly recommend this variety because of its outstanding quality. **Packet, 5c; ounce, 10c; ¼ pound, 25c; 1 pound, 60c.**

Half Sugar Mangels double the yield of sugar beets. Roots large, smooth, creamy white with few rootlets, tops medium size. **Packet, 5c; ounce, 10c; ¼ pound, 20c; 1 pound, 50c.**

Danish Sludstrup. Roots long, reddish yellow, good yielder growing well above the ground. **Packet, 5c; ounce, 10c; ¼ pound, 20c; 1 pound, 50c.**

Sugar Beets. Seed should be planted in early spring in rows 2½ feet apart, cultivate frequently. When plants are about 3 inches high begin thinning and continue at intervals until they are 10 inches apart. **Packet, 5c; ounce, 10c; ¼ pound, 25c.**

BRUSSELS SPROUTS

Primarily a fall and winter vegetable. The plant will not mature properly in intense heat and dryness. It is closely related to the cabbage and seed planting should be treated exactly as that of the late cabbage varieties.

When the plants reach a growth of 5 to 7 inches high pinch off a few of the leaves and set out about 18 inches apart in rows that are 2 feet apart.

Cultivate frequently especially after rain. Sprouts begin forming in the leaf bases of the lower leaves first. To stimulate their production it is a good plan to break off most of the lower leaves of the plants beginning about October 1st or when the buds develop. This also forces more food into the forming sprouts, the lowest of which should be picked first. **Packet, 5c; ounce, 45c.**

CABBAGE

This vegetable will not stand extreme heat or dryness and will grow well only where there is adequate moisture and cool weather. Most good garden soil will produce satisfactory cabbage if it is properly enriched. Commercially it is grown on soil ranging from sandy loam to very hard clay or even mulch. Perhaps what is more important than texture is soil moisture. This must be adequate and conserved by constant cultivation. Most important of all is fertility, no crop repays so richly the expenditure of fertilizer as cabbage. It is most advisable to use a commercial fertilizer that could be applied before planting at the rate of 11 pounds to a 100 foot row. It is also advisable to top dress about three weeks after the plants are set out with Nitrate of Soda at the rate of 1¼ pounds to 100 foot row. The Nitrate of Soda application is necessary only for the early varieties.

Sow seed in flats during February and March, use normal soil as richly fertilized types will cause the seedlings to grow too fast and become spindly. When seedlings are 3 to 4 inches high replant further apart in flats or boxes. This insures stocky instead of spindly plants and makes them a month or six weeks earlier than if the plants were set out. Cabbage should be set out at different intervals depending upon variety. Early varieties should be set about 14 inches apart in rows 28 inches apart. Late season varieties should be set 24 inches apart in rows 36 inches apart. If planted much closer they would be crowding and result in small heads. Prices unless otherwise noted: **Packet, 5c; ounce, 25c; ¼ pound, 85c.**

EARLY VARIETIES

Early Jersey Wakefield. Small compact, conical heads. Plants small, short stemmed.

Copenhagen Market. Heads small, round, and solid. Plants compact with short stems.

Golden Acre. Earlier than Copenhagen Market. Heads are small, round and solid. **Packet, 5c; ounce, 40c; ¼ pound, $1.25.**

MID-SEASON VARIETIES

Dwarf Flat Dutch. Heads globular and solid. Plants are dwarf with short stems.

LATE VARIETIES

Danish Ballhead. Most widely used type of late cabbage. Heads deep, round with hard compact interior, stubby with short stems.

Late Flat Dutch. Large, flat, solid heads 6½ to 7 inches deep.

Other varieties: **Danish Roundhead, Red Rock, Late Savoy, Wong Bok** and **Chinese Petsai.**

DANISH BALL HEAD CABBAGE

ITALIAN BROCCOLI

A branching herb about 2 feet high. In summer all of the lateral branches and the circle ones end in a small green open head. This, which should be cut before it actually flowers, is cooked like cauliflower or spinach and is very delicious and rich in vitamins.

The plant prefers coolness and moisture. Unless you are in a particularly favorable place, such as the sea coast, Italian Broccoli is best treated as a two-season crop. First it is started in a hotbed or greenhouse in February or March and transplanted to the open after frost. The second crop is sown in the seed bed in June or July and transplanted to the garden a month or six weeks later. The later crop can be harvested throughout the Autumn months.

Plants should be set two feet apart in rows which are themselves two feet apart. A single row of 50 plants is ample for a family of five. The soil should be well cultivated. **Packet, 5c; ounce, 90c.**

St. Valentine Broccoli. This variety is very similar to cauliflower, it must be planted with the same cultural directions. **Packet, 5c; ounce, 90c.**

CRESS

True Water Cress. A very distinct variety of cress with tasty, small, oval leaves. Grown easily in shallow ponds or along the edges of small streams. Excellent for all kinds of salad. **Pkt., 5c; ounce, 45c; ¼ pound, $1.50, postpaid.**

Curled or **Pepper Grass.** Its leaves have a very pleasant pungency, which gives it the common name "Pepper Grass." The spicy foliage is frilled or curled, making it very attractive for salad trimmings. Sow thickly in drills. **Packet, 5c; ounce, 15c; ¼ pound, 45c, postpaid.**

IMPERATOR CARROT

CARROTS

Sow seed rather thickly in drills about ½ to ¾ of an inch deep, the rows being 12 to 24 inches apart depending on hand or machine cultivation. After the plants are up about 5 inches they should be thinned out from 3 to 4 inches apart in the rows. If the soil is rich there will be no trouble about root development. Young, tender, quick growing carrots are better flavored than the old or slow growing type. If the soil is not rich apply a complete commercial fertilizer at the rate of 6 pounds per 100 foot row. It takes about 1 ounce of seed for a row of this length.

In order to have tender, juicy carrots all season long it is advisable to make small sowings at regular two-week intervals up to the middle of July. Later sowings may not mature before early frost.

Carrots like all root crops should be protected against soil insects such as maggots, worms and wire worms. The best control is crude Naphthalene Flakes worked in the soil a few days before planting the seed. **Packet, 5c; ounce, 15c; ¼ pound, 35c; postpaid.**

Imperator. An outstanding type bred for market garden use and for shipping. Tops are medium, but strong enough for good bunching. Roots 7½ to 8 inches long with sloping shoulders, smooth, deep rich, orange, uniformly tapered to blunt end. Flesh rich orange, color extending to the center of the root with distinct core.

P. S. C. New Coreless. Larger than all other varieties. Crisp, solid, and uniform in size. Truly the outstanding carrot for tasty, crisp vegetable salads during the hot summer months. A genuine stump-rooted type.

Danvers Half Long. Grown mainly for its productiveness and adaptability to all classes of soil. A fine quality carrot of uniform size and shape. Sweet, crisp, tasty and tender deep orange flesh.

Chantenay (Half Long). Well adapted for home gardens. Requires little cultivation and care. Ideal for lazy gardeners. Medium size tops, small necks, slightly tapering roots, stump-rooted and smooth.

Other Varieties: **Improved Long Orange, Oxheart, Early Scarlet Horn, French Forcing.**

STOCK CARROTS

P. S. C. Yellow Giant. Especially adapted to wet, heavy soils. Half long roots, broad shoulder, growing half out of the ground. Bright yellow flesh. Producing a heavy crop that is most excellent for dairy cows.

Large White Belgian. One of the oldest and best known stock carrots. Roots 12 inches in length, producing a heavy yield of marvelous quality.

Mastodon. Improved short white flesh, with smooth roots. Very heavy at shoulders, tapering.

CELERY

Successful celery culture is based on the right climate and the right soil. As to the first the plant requires coolness as well as sufficient moisture.

No garden crop grown is such a rich feeder as celery. The soil must have depth and mellowness and an abundant supply of moisture. It is impossible to grow celery in hard or sun-baked soil. It is advisable to prepare the seed bed with a good commercial fertilizer and peat moss using about 6 pounds per 100 foot row. This should all be done about three weeks before the plants are set in the garden.

In growing celery from seed it is advisable to start the seed in flats and later transplant when the small plants are approximately 5 inches tall.

Golden Self Blanching. Indeed, one of the best early spring varieties for Northwest gardens. The long, crisp stalks mature to a beautiful golden yellow, which are easily blanched to a creamy white. **Packet, 5c; ounce, 50c.**

Golden Plume. Superior quality, vigorous growing. A favorite with home gardeners. Semi-dwarf in habit. Fine flavored stalks that are brittle, stringless and blanch quickly. **Packet, 5c; ounce, 50c.**

Winter Queen. Matures in the winter and spring. Very compact growth, with large heart. Stalks blanch to cream white. Ribs are solid, crisp and free from strings. **Packet, 5c; ounce, 25c.**

White Plume. The very earliest known variety. Stalks are exceptionally crisp and tender with inner leaves and tasty white heart. **Packet, 5c; ounce, 25c.**

CAULIFLOWER

Cauliflower is more difficult to grow than any other plant of the cabbage tribe, like most of them it will not stand heat and drought which limits its culture to areas free of these conditions. It is best grown in fairly cool climates where there is plenty of moisture. It will not, however, stand as much frost as cabbage or Brussels Sprouts and in very protracted warm weather it will not head. Like other members of the Cabbage family Cauliflower is divided into two groups, early varieties and the late varieties.

Soil and fertilizer conditions are the same as cabbage. It is advisable to use a good commercial fertilizer and to cultivate at regular intervals.

For quicker and better results it is advisable to start cauliflower in flats and later transplant when the young plants are about 4 or 5 inches tall. The plants should be set about 2 feet apart in rows 3 feet apart. This will allow approximately 50 head of Cauliflower to a 100 foot row. This should be more than ample for a family of five.

Solid white heads may be produced by tying the outer leaves over the center of the plant as soon as the first button-like swelling appears. Use string, tape or raffia for tying. Do not pull tight enough to injure outer leaves.

MT. HOOD SNOWBALL CAULIFLOWER

Portland Seed Co.'s Mt. Hood Snowball. One of the best early varieties that we highly recommend for early and late planting. Its pure white, fine quality heads of medium uniform size are exceedingly tasty. Popular with home gardeners as well as market gardeners. **Packet, 5c; ounce, $2.00.**

Danish Giant. Outstanding because of its ability to yield heavily in dry weather. Its large, solid white heads mature very early if forced indoors during early growth.
Packet, 5c; ounce, $1.50.

Early Snowball. Adapted very well to forcing as well as outdoor planting. Plants are compact, producing medium to large, round heads that are pure white when blanched.
Packet, 5c; ounce, $1.75.

Other Varieties: **Large Algiers, Autumn Giant.**
Packet, 5c; ounce, $1.25.

CHICORY

Witloof. This variety has become exceedingly popular for winter salads. It forms a delicious dish when served like Endive or Cos lettuce with French dressing. The leaves and stems blanch easily. Seed should be sown one inch deep during May or June and spaced about 18 inches apart. **Packet, 5c; ounce, 15c.**

Large Rooted. The roots of this plant are very popular as a coffee substitute. The young tender leaves may be used for salad or cooked for greens. Sow quite thinly in shallow drills in the spring. When well started, thin to stand 2 to 3 inches apart in the row.
Packet, 5c; ounce, 15c, postpaid.

CHIVES

The famous Schnittlauch—highly prized for flavor. The seed is not easily germinated and it will be necessary, therefore, to plant a fairly good quantity of the seed if many plants are desired.
Packet, 5c; ounce, $1.00, postpaid.

SWISS CHARD

Only the tops of this beet are used, like spinach, and the succulent stalks and midribs may be prepared in the same way as asparagus. The plants are cultivated like beets except that they should be thinned to 8 to 10 inches apart. If only the outer leaves are gathered, the inner leaves will continue to grow, and repeated pickings can be made.

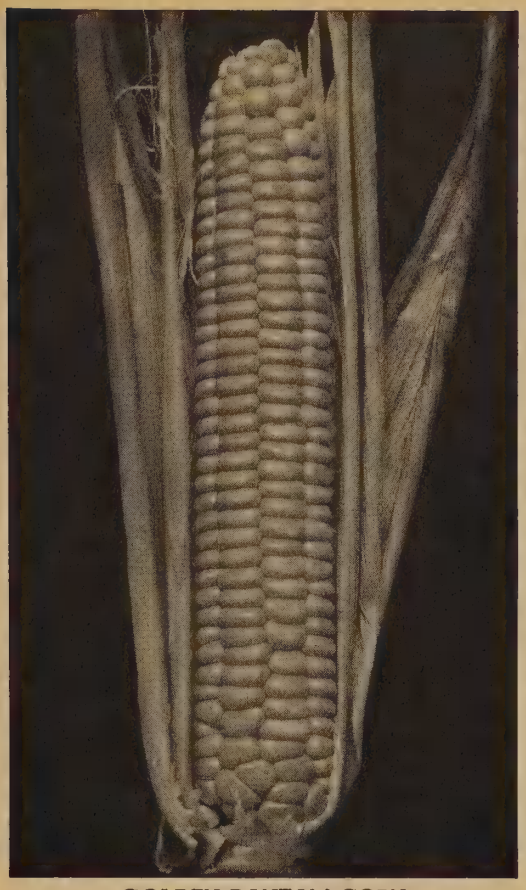
Lucullus, Dark Green. The fleshy crumpled leaves of this variety make very choice greens. Plant grows erect, the stalks are rounded and finely ribbed; the foliage is a rich deep green. Favored by many because of its superior flavor. **Packet, 5c; ounce, 15c; ¼ pound, 35c; pound, $1.00.**

CELERIAC

The same culture as celery. See page 32.

Large Smooth Prague. The latest improved form with very few side roots. This is the largest and best variety of the "Turnip Rooted Celery." **Packet, 5c; ounce, 25c; ¼ pound, 75c, postpaid.**

Utah or Green Crisp Celery. Matures a week or ten days earlier than most other types of celery. Plants are sturdy, compact, and solid. Stems are broad, thick and rounded. **Packet, 5c; ounce, 50c.**



GOLDEN BANTAM CORN

Improved Golden Bantam. An improved strain over the old type Golden Bantam, however, we still recommend the old fashioned variety for Northwest conditions. This newer strain has ten rows of kernels to the cob.

Golden West. A very fine early variety. Much the same flavor and tenderness as Golden Bantam and exceedingly popular with market gardeners. Ten to twelve rows to the cob.

Early Sunshine. One of the early varieties of sweet corn. Matures 3 or 4 days earlier than the majority of others. Taller and more vigorous with 12 rows to the ear.

Other varieties: **Golden Giant, Golden Evergreen.**

WHITE VARIETY

Stowell's Evergreen. Remarkable for remaining in a fresh condition for a long period. Plants 7 to 7½ feet tall. Ears 8 inches long, 2¼ to 2½ inches thick; 14 to 20 rows to the cob. The most populzr white variety of sweet corn.

Oregon Evergreen. Earlier than Stowell's and just as fine and sweet. An exceptionally fine canning variety because of its uniform medium to large ears with 12 to 18 rows.

Other varieties: **Early Portland Market, Country Gentleman, Black Mexican, Early Evergreen, Early Minnesota, Howling Mob, Peep o'Day** and **White Cory.**

CORN

Corn in truly a native of this country, developed before the new world was discovered. It can be raised with some success in every state in the union, however, for best results it requires a growing season of seventy to eighty days and with plenty of summer heat.

Any good garden soil will grow corn but it will mature quicker and be more tender if a good commercial fertilizer is used at the rate of about 11 pounds to a 100 foot row.

Generally speaking, it is better to plant the early varieties in drills and the later varieties, of course, in hills, so spaced that cultivation may be done both ways without disturbing the plants. If your garden is of the weedy sort it is better to plant all varieties in hills because it is thus possible to control weeds easier when plants are in long rows.

For early types make the drills 2 to 2½ feet apart and 1½ inches deep. For growing in rows put a seed every 3 inches in a drill with the expectation of thinning to 6-inch intervals as soon as possible. The thinned plants cannot be transplanted with any success.

YELLOW VARIETY

Golden Bantam. This variety of corn is second to none for tender, sweet and juicy ears. Although not as early as some types, its exceptionally fine quality makes it well worth waiting for. Stalks about 5 feet tall. Eight straight rows of kernels to the cob.

FIELD CORN

We offer the following varieties: **Minnesota "13", Oregon Yellow Dent, Pride of the North, Northwestern Dent, Champion White Pearl, White Flint, Wisconsin White Dent** and **King Philips.** We will gladly quote prices on inquiry.

POP CORN

Butter Crisp. The kernels of this variety pop out large and fluffy and resembles buttered pop corn because of its creamy color.

Packet, 10c; 1 pound, 25c.

White Rice. The standard variety for many years. Kernels pop out large and snowy white. Exceedingly well flavored.

Packet, 10c; 1 pound, 25c.

META KILLS SLUGS AND SNAILS ONE POUND 25c

Golden Cross Bantam. This hybrid is undoubtedly one of the best and most prolific of the yellow sweet corns. The ears are 8 to 10 inches long with 14 to 16 rows of kernels, slightly lighter in color and yielding about 40% more marketable ears than Golden Bantam. Grows 5 to 6 feet high with sturdy stalks and deep green foliage. **Packet, 10c; ½ pound, 20c; 1 pound, 35c.**

CUCUMBERS

All Cucumbers—Packet, 5c; ounce, 15c, postpaid.

Gardeners with limited space cannot afford to plant cucumbers, which for outdoor culture must be planted in hills at intervals of at least 4½ feet each way. The plant is a sprawling tendril-bearing vine. It requires considerable heat, a lot of moisture and a rich soil. Cucumbers are much more sensitive to frost than most vegetable crops. They can only be grown in regions that not only have plenty of heat but a frost-free period of 75 to 90 days.

Warm sandy loam especially if it has a gentle slope southward is the best soil for out-door cucumbers. No other method of fertilizing is so satisfactory as putting 2 quarts of thoroughly rotted manure under each hill or a scant wheelbarrow load is better. Broadcasting manure or fertilizer for plants spaced so far apart is merely wasteful.

See that the manure is covered sufficiently so that no seed touches it. This is easily accomplished by forming a circular hill about a foot wide and 4 inches deep over each lot of buried manure, the site of which had better be marked with a stick, if some days intervene between burying and planting time.

Planting cannot be done until warm or hot weather is assured. Plant six seeds to each hill expecting to reduce them to three as soon as germination is complete, selecting the three best plants. The seed should be planted about 1½ inches deep.

As the vines become large they will fill all of the space between the hills, so it is very important that you cultivate thoroughly while the plants are still young.

Diamond Long Green. Truly the outstanding of the large varieties. It is extremely crisp and tender, sweet, very fine for slicing. It is best for sweet pickles when matured.

Improved White Spine. An outstanding variety for table use. It is one of the early types and exceedingly tasty. Uniformly straight and handsome light green fruits, with a few white spines.

Boston Pickling or **Green Prolific.** Truly the finest and most popular pickling variety. The tasty, bright green fruits range from 4 to 5 inches in length and are exceedingly productive. Fine for home and market.

Davis Perfect. A vigorous grower. Fruits long, dark green, crisp and tender. Holds its color exceedingly well after picking, which makes it a favorite with the market gardeners. Seed cavity is small, making them very desirable for home and market uses. One of the outstanding varieties for Northwest climate.

COLORADO CUCUMBER

Colorado. Cucumber Colorado won the All American 1935 Award of Merit and is destined to become one of the most popular varieties. One of its outstanding qualities is that it does not taper but is practically the same size from end to end. The fruits are dark green, 9 to 12 inches long and will yield more slicing cucumber than any other variety of approximately its size. Is highly recommended for the shipper and market garden.

Other Varieties—**Short Green** or **Early Frame, Lemon, Japanese Climbing, Small Gherkin, Deltus, Vaughn,** Straight Eight.

ENDIVE

Culture similar to lettuce. Outer leaves should be tied over the head to bleach. **Packet, 5c; ounce, 10c; ¼ pound, 35c, postpaid.**

EGG PLANT

Black Beauty. Extra early, quick growing, vigorous variety, uniform size. Color deep, blackish purple. Excellent for market. **Packet, 5c; ounce, 60c; ¼ pound, $1.75, postpaid.**

New York Improved Large Purple. Leading market variety. Not quite as early as Black Beauty. Large and productive. **Packet, 5c; ounce, 60c; ¼ pound, $1.75, postpaid.**

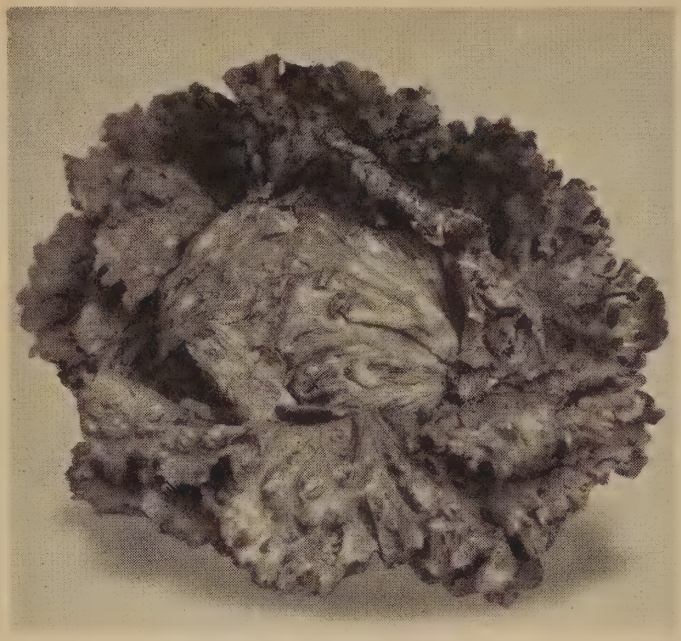
FENNEL

Florence Fennel. An Italian vegetable with thick leaf stem. Served boiled or sliced, also cooked in soups. Easily grown. **Packet, 5c; ounce, 25c, postpaid.**

LEEK

American Flag. Used very extensively throughout the entire country. A very strong hardy grower that is very easily cultivated in the home garden. It is broad leaved, with rather short but very thick stems. **Packet, 5c; ounce, 25c.**

Large Rouen. A very hardy variety, with short, thick, well-blanched stems and dark green leaves. **Packet, 5c; ounce, 25c.**



NEW YORK HEAD LETTUCE

LETTUCE

Crisp, tender lettuce, the most desirable of all salad plants. Can best be grown with the strictest attention to its moisture, soil and climatic requirements. There are many varieties and types of lettuce, however for the home gardener we can segregate them into two varieties, namely, head variety and looseleaf variety. The first is by far the most desirable but the most difficult to grow. The second is less desirable but so much easier to grow that most beginners will do well to select one of its varieties.

Lettuce can easily endure several degrees of frost especially in the seedling stage which greatly facilitates the handling in the early spring. However, this popular vegetable cannot be grown in extreme heat.

Any good garden soil will grow lettuce of a sort but the most favorable soils are rich sandy loam. Some varieties like Grand Rapids do best on good heavy soils with considerable clay in them. Lettuce soils should not be acid, if they are in this condition they should be limed. However, more important than the texture of the soil is the problem of moisture. If this is not available do not attempt to grow this vegetable.

HEADING VARIETIES

Packet, 5c; ounce, 15c

Portland Seed Co.'s Crispette. Heads are large, firm, crisp and tender. Bright green, curly leaves cover the outside. Solidity of the heads is insured by the large, white main ribs of leaves which curve toward the center. Withstands hot weather far better than most varieties and exceedingly tasty.

New York or **Wonderful.** The best head lettuce market gardeners. It is large, very solid, tender, crisp and sweet. Beautifully blanched to a creamy white with bright green outer leaves. A very hardy and rapid grower, also deep rooted.

Hanson (Improved Hard Heading Stock). One of the very best. The heads are green on the outside and cream colored on the inside. It withstands the hot sun very well and stays crisp for quite some time.

Other Varieties—**Brown Dutch, New York 12, Big Boston.**

LOOSE-LEAF VARIETIES

Packet, 5c; ounce, 15c

Grand Rapids. This variety is the standard hothouse lettuce for forcing. It also does exceedingly well in the open ground. The leaves are light yellowish green, slightly crimped, crisp and tender.

Simpson's Early Curled. Very fine for early planting and forcing. The leaves are finely curled and wrinkled. It is very tasty and crisp and does not wilt readily.

Other Varieties—**Chicken Lettuce, Prizehead.**

KALE OR BORECOLE

This plant is widely grown for greens. Most varieties have heavy, densely curled foliage of tasty greens, and the dwarf variety is desirable for ornamental garden use. The culture is practically the same as that of late cabbage, but as the plants will withstand several degrees of frost, they grow late into the fall. They are more tasty after the first light frost.

Emerald Isle. Grows to medium height and is exceedingly hardy. Best for greens because of their very fine flavor. Produces new shoots as fast as leaves are used. The leaves are closely curled. **Packet, 5c; ounce, 15c; ¼ pound, 45c; 1 pound, $1.25.**

Tall Green Curled Scotch. This variety grows about 2 feet high and has splendid dark green, curled and wrinkled leaves. It is very hardy and vigorous grower. Improved greatly after first slight frost. **Packet, 5c; ounce, 15c; ¼ pound, 45c; 1 pound, $1.25.**

Dwarf Green Curled. Exceptionally fine for ornamental garden use, also good for greens. The leaves are beautifully curled and a brilliant green. **Packet, 5c; ounce, 15c; ¼ pound, 45c; 1 pound, $1.00.**

Cow Kale or **Thousand Headed.** The most valuable green feed for Pacific Coast dairymen. It is grown the same as stock cabbage. **Packet, 5c; ounce, 10c; ¼ pound, 20c; 1 pound, 50c, postpaid.**

MELONS

The term melon, as commonly used, includes the fruits of two distinct types, namely the Muskmelon or Cantaloupe and the Watermelon. Both of these types require hot weather during the day and warm evenings in order to fully ripen the fruit. We do not recommend growing melons in the Western section of the Northwest, however, there are certain types that do fairly well in this section.

Melons thrive on a well-drained fertile soil; for early crops a light, sandy loam is preferred. Excessive alkali should be avoided. Manures or fertilizers are not generally used in the principal producing regions, the fertility being maintained by rotation and the use of green manure crops. However, where this is not available, it is advisable to use a good commercial fertilizer in a mild manner.

In growing melons it is necessary to allow a great deal of room for spreading vines. The seed may be planted as soon as the ground is warm and weather conditions permit. The hills should be approximately 6 feet apart.

BLACK-SEEDED ICE CREAM MELON

WATERMELONS

All Watermelons—Packet, 5c; ounce, 15c, postpaid

Klondike. Rind is a beautiful dark green and exceptionally thin. The interior of the melon is a distinctive flesh color. Grow uniform in shape and size and ship very well.

Sweetheart. The vines are vigorous and productive. Fruits are large, oval, heavily mottled, dark and bright green, rind thin, flesh bright red, firm, sweet and tender.

Kleckley's Sweet or **Monte Cristo.** Distinctly a home garden melon as the dark bluish-green rind is so crisp that it breaks easily. The long, oval fruits are slightly larger near the blossom end. They weigh from 25 to 30 pounds and ripen in a little over one hundred days. For home gardeners we highly recommend this variety.

Black-Seeded Ice Cream. The melon is almost round, with a thin rind of medium green. The inside flesh is pink and exceptionally sweet and fine flavored. This variety matures early and is a fine keeper.

Other Varieties—**Rattlesnake, Stone Mountain, Tom Watson, Irish Grey, Cole's Early, Black-Seeded Chilean, Striped Klondike.**

MUSKMELONS

All Muskmelons—Packet, 5c; ounce, 15c, postpaid.

Sugar Rock. The fruits are oval, large size, without ribbing and netted in the manner characteristic of these melons and from which they take their names. Matures in about 85 days from sowing seed, in ordinary weather conditions. The flesh is deep and thick, a beautiful orange color, with a sugary delicious flavor that is unexcelled.

Hearts of Gold. The rind is firm and densely netted. Rich, fine-grained, orange colored flesh is excellent in flavor. The seed cavity is small and in all the melon is a very fine shipper.

Rocky Ford Pollock 10-25. The fruits are uniform and heavily netted. The flesh is very sweet and tasty with a salmon-orange tint.

Other Varieties—**Burrel Gem, Large Yellow Cantaloupe, Small Green Nutmeg, Osage** or **Miller's Cream, Early Hackensack, Hale's Best, Honey Dew Pink Flesh, Honey Dew Green Flesh, Perfecto, Speer, Banana, Persian.**

CASABA MELONS

Golden Beauty. A beautiful bright golden yellow, wrinkled skin. The fruits are globular shaped and mature very early. The flesh is white and very thick. Exceedingly tender, rich, juicy and "honey sweet." **Packet, 5c; ounce, 15c, postpaid.**

RIVERSIDE SWEET SPANISH

ONIONS

There are two types of onions that are most commonly grown by home gardeners—the young green or bunching onions and the mature bulb or dry onion. Green, or bunching onions, may be produced from seed, sets or multiplier bulbs. The set method is generally used among most home gardeners for the earliest green onions. However, the seed method produces a much better quality of onion and is the common method among the market gardener trade.

Onions require a rich, well drained soil, but any good garden soil will be satisfactory so long as it is not too stony. To be sure that the soil is rich enough, use a pound of well rotted manure to each square foot, and in addition use four or five pounds of commercial fertilizer to each 100 square feet.

The soil must be moist, as the plants will not thrive in dry sites. Onions are grown successfully in nearly all but the desert states, but they thrive best in the comparatively cool sites.

Oregon Yellow Danvers. Bulbs large, half globe, small neck, with thin brownish skin. Flesh firm, white and fine grained. Ripens early and a good keeper.

Packet, 5c; ounce, 20c, postpaid.

White Bunching. Outstanding for green onions. The young sprouts are crisp and mild, attaining a good size before the bulb forms.

Packet, 5c; ounce, 20c.

Riverside Sweet Spanish. A large globe-shaped brown onion, weighing one to three pounds. Flesh mild and sweet

Packet, 5c; ounce, 20c.

Crystal Wax Bermuda. Medium size, pure waxy white. One of the mildest sorts grown.

Packet, 5c; ounce, 20c.

Other Varieties—**Australian Brown, Prizetaker, Yellow Globe Danvers, Large Red Weathersfield, White Portugal, Yellow Bermuda,** and **Bottom Onion** sets.

OKRA OR GUMBO

Grown for its green pods, which are used in soups, stews, etc., for their rich flavor and substance.

Improved Dwarf Green. Very early, with long, green, slender pods. **Packet, 5c; ounce, 15c; ¼ pound, 35c, postpaid.**

White Velvet. Large pods, smooth or very slightly ribbed. Remains tender a long time. **Packet, 5c; ounce, 15c; ¼ pound, 35c, postpaid.**

PARSNIPS

Culture same as for carrots. May planting considered best. **Hollow Crown or Long White.** Long, white, smooth, tender, sugary, excellent flavor. Very hardy. Will keep through the winter without protection. **Packet, 5c; ounce, 15c, postpaid.**

PARSELY

Plain. Plain leaves, flat, dark green. Used for flavoring and drying.

Packet, 5c; ounce, 15c, postpaid.

Turnip Rooted or **Hamburg.** Roots used for flavoring soups, stews, etc.

Extra Double Curled. Dark green, moss-like leaves, finely curled.

PUMPKINS

Pumpkins are grown much the same as melons, but are less sensitive to cold weather. They are best after the first light frosts, usually during the months of October and November. Seed should be planted during the early part of May, in hills 6 to 8 feet apart in all directions. Every garden should have a few hills of this truly American vegetable.

All varieties of pumpkins: Packet, 5c; 1 ounce, 15c, postpaid.

Large Yellow or **Connecticut Field.** Large, round. Deep, glossy yellow. Very productive. Good keeper. Grown extensively for stock feeding.

Giant of All ("King of Mammoths"). Almost a globe in shape. Skin a rich golden yellow, flesh firm, fine grained and deep yellow, sweet flavored, very thick. Excellent quality.

Winter Luxury. The best flavored pie pumpkin grown. Excellent keeper. Medium size. Color golden russet, finely netted. Flesh deep golden, sweet, tender and very thick.

Sweet or **Sugar.** A productive small pumpkin. Skin orange, flesh deep yellow, fine grained. Very sweet. The famous "New England Pi Pumpkin."

PEAS

The garden pea combines two features of great value. It is not only very nutritious and rich in Vitamins A, B and C but provides many advantages of clean vegetable, hence, its first great importance as a garden crop. For best results this crop is grown in a cool mild climate.

Peas do well on practically all types of garden soil. Best results may be obtained by using a good commercial fertilizer at the rate of 4 pounds per 100 foot row. Also for a better crop it is advisable to inoculate with Nitragin.

Almost no garden crop is so easy to start as peas. Peas of the low sort should be planted just as early as the ground can be worked. You need not wait for the last erratic late frost. Sowing pea seeds should be practically the first spring activity in the vegetable garden. Tall varieties are better planted about ten or fifteen days later than the lower sorts.

For the first planting of the low varieties make the drills about two inches deep, or 1 inch deep if the soil is heavy and has much clay in it. Later planting should be in drills about twice this depth but only half filled at first. As the plants grow the trench is gradually filled up. The object of this deeper drill for the later planting is to secure greater coolness and moisture for the roots and plants that will have to face greater heat.

Peas need only sufficient cultivation to keep down weeds.

ALDERMAN PEAS

EARLY VARIETIES

Alaska. Height of vine 30 inches. Pods 3 inches long, blunt, straight, light green, containing 6 to 8 peas, good quality—used extensively for canning.

Gradus. Height of vine 36 inches. Pods 4 inches long, broad, plump, pointed, medium green, containing 8 to 10 sweet delicious peas.

Laxtonian. Height of vine 18 to 20 inches. Pods 4½ inches long, broad, slightly curved, pointed, deep green containing 7 to 8 large succulent peas.

American Wonder. Height of vine 14 to 16 inches. Pods 2½ to 3 inches long, blunt, straight, light green containing 6 to 7 peas.

Dwarf Gradus. Height of vine 28 inches. Pods 3½ to 4 inches long, broad, plump, pointed, medium green containing 7 to 8 large tender peas.

Little Marvel. Height of vine 18 inches. Pods 3 inches long, blunt, plump, dark green containing 7 to 8 tender peas.

Laxton Progress. Height of vine 18 to 20 inches. Pods 4½ to 5 inches long, broad, some with curved, pointed, medium dark green containing 7 to 9 large tender peas.

LATE VARIETIES

Tall Telephone. Height of vine 40 inches. Pods 4½ to 5 inches long, broad, plump, straight, pointed, dark green containing 8 to 10 peas of highest quality.

Alderman. Height of vine, pods and color same as Tall Telephone.

Stratagem. Height of vine 26 inches. Pods 4½ inches long, ⅞-inch wide, nearly round, straight, pointed, dark green containing 8 to 10 tender, succulent peas.

Dwarf Telephone. Height of vine 22 inches. Pods 4½ inches long, broad, slightly curved, pointed, containing 8 to 10 peas.

OTHER VARIETIES OF PEAS

Blue Bantam, Hundredfold, Duke's Delight.

PEPPERS

Continuous warm weather for best results. Seed should be started in hot beds as it is slow in germinating. Set plants in ground when about 2½ inches tall. A moderate dressing of guano, or commercial fertilizer, hoed into the soil after plants are well established, will give better results. **All varieties of Peppers: Packet, 5c; 1 ounce, 60c, postpaid.**

OTHER VARIETIES

Perfection Pimento.
Large Bell or **Bull Nose.**
Cayenne.
Chinese Giant.
Ruby King.
Chili.
California Wonder.

EARLY SCARLET GLOBE

SPINACH

All Spinach—Packet, 5c; ounce, 15c. Spinach is a cool season annual, grown for greens. No spinach will stand extreme summer heat without "shooting" seed stalks. For this reason the seed must be sown early in the spring or late in the summer to avoid the danger of the crop maturing in July or August. For spring and summer use sow as early as the ground can be worked and make successive plantings every two weeks until May 15th. The leaves will be ready for use four or five weeks after sowing. For Autumn use, sow seed about August 1st. Spinach will grow very large and can be cut from the first of September until the ground freezes.

Improved Thick Leaf. Believed by many as the finest spinach on the American market today. It is the largest-leaved spinach grown and is exceedingly crisp, tender and tasy. It grows rapidly and remains in good condition a long time, making it fine for market. The medium-green leaves are large, rounded, slightly crumpled, succulent, and tender.

New Zealand. Thrives in hot weather in any soil. Leaves comparatively broad and pointed. Will grow through the summer.

RADISH

All Radishes — Packet, 5c; ounce, 15c. The common Radish will germinate in four to five days and if grown properly will have useful roots ready to harvest in twenty-eight to thirty days. If it takes longer than this the roots will be spongy, acid or woody, hence useless. The secret of getting crisp, delicious radishes is quick growth; for this they need a rich mellow soil. Sow the seed about one-third of an inch deep in drills not over 8 to 12 inches apart.

All through the spring a succession should be sown every ten days. Keep in mind that an old radish is a worthless one and being harvested as soon as possible, they must be quickly grown and of course kept thoroughly cultivated. It is advisable to use crude Naphthalene flakes in the soil at the time of sowing seed. This will protect the crop from soil insects such as maggots and worms.

Early Scarlet Turnip. White Tipped. Turnip-shaped roots tipped with white. Flesh white, crisp, tender and sweet. Tops small. Matures very early.

French Breakfast or **Half Long.** Excellent for both home and market gardening. Tops small, roots oblong and blunt. Scarlet with white bottoms; flesh white, crisp and sweet. Splendid quality.

Early Scarlet Globe. Matures very early. A bright carmine-red color. Perfect oval shape and ideal size makes this an excellent radish for market. They reach this size in about 25 or 30 days and are best when not quite full grown.

White Icicle. A popular white radish. Roots long, clear, white, especially mild.

Other Varieties—**Early Scarlet Turnip, Long Black Spanish, China Rose Winter.**

Prickly Winter. Hardiest variety. Must be sown in the fall. Seeds prickly. Leaves long, pointed, thick and succulent.

Other Varieties—**Nobel Giant Leaved, King of Denmark Long Standing.**

KOHL-RABI

Early White Vienna. This is the best table variety and matures very early. If used for table it is the tastiest when the bulbs are 2 inches in diameter. The plants are light green with white flesh of excellent quality. **Packet, 5c; ounce, 20c.**

Early Purple Vienna. Standard early sort. The plants are small, with dark green leaves spotted with purple. The exterior is purple, but flesh is white. **Packet, 5c; ounce, 20c.**

RUTABAGA OR SWEDE

Improved American Purple Top. The leading variety. Large, immense yielder. Superior in every way. **Packet, 5c; ounce, 15c; ¼ pound, 25c; 1 pound, 75c, postpaid.**

SALSIFY

Mammoth Sandwich Island. Roots large, smooth, very hardy. May remain in ground during winter or be stored in dry earth or sand. **Packet, 5c; ounce, 20c; ¼ pound, 55c; 1 pound, $2.00, postpaid.**

PROTECT ROOT CROPS WITH DIAMOND NAPHTHALENE FLAKES

1½ lb. package, 25c. 4 lb. package, 50c.

SQUASH

If you have space and prefer to grow the vine-like forms, the hills should be at least 8x8 feet apart, but if space requirements make the bush forms imperative, and they are far easier to grow, cultivate and harvest, the hills can be about 30 inches apart each way.

It is useless to put squashes in a heavy, wet soil, for they grow too slowly in such places. It is better to select a warm sandy loam, upon which they thrive if it can be made rich enough. Being spaced so far apart, there is no use in a program of general soil enrichment for squashes, but every reason for concentrating the fertilizer under the hills. A good plan is to dig out about 2 feet of indifferent soil and fill in with a half-and-half mixture of sandy loam and well-rotted manure. Or if this is lacking, mix about 1 pound of a good complete commercial fertilizer with the soil.

For the summer squashes, unless your soil warms up very slowly, the seed should be planted directly in the hills, 4 to 5 seed to a hill, which should ultimately be thinned to 2 or 3 plants, depending upon their vigor and ravages of cut worms. It will help greatly if Naphthalene Flakes are used at the time of planting.

For the winter squashes or for any that have long, sprawling vines, it is better to start them in the hotbed, as outlned above, if you live in a region with a short growing season. Otherwise, some of the late fruits will be caught by frost before maturity. In any case, the vine-like ones should be watched to see that all the growth does not run to vine and leaf at the expense of fruit. This is especially likely in rich soils or in one that gets extra top-dressing of fertilizer. By keeping vines well pinched back it will develop better fruits.

All Varieties Squash—Packet, 5c; ounce, 15c; ¼ pound, 35c, postpaid.

WINTER VARIETIES

Improved Hubbard Squash. Large and of warty Hubbard type. Shell dark green, hard, moderately warted. Flesh light orange, very dry and richly flavored. One of the best winter squashes.

Banana Squash. One to two feet long. Flesh firm, orange yellow. Rind smooth, greyish green color. Excellent flavor and splendid keeping qualities.

Golden Hubbard Squash. Same in size, shape and quality as the green Hubbard, except that it is bright red or golden color and somewhat earlier. Excellent keeper.

Table Queen Squash. Small, dark green, acorn shape. Flesh rich yellow, dry, richly flavored. Medium early. A good keeper.

Other Varieties of Winter Squashes: **Boston Marrow, Mammoth Chili, Sibley** or **Pike's Peak** and **Warty Hubbard.**

SUMMER VARIETIES

Cocozelel or **Italian Marrow.** Skin dark green, becoming marbled with yellow at maturity. Flesh pale green, thick, firm and tender. Best when 5 to 6 inches long.

Early Summer Crookneck. Earlier and larger than ordinary crookneck. Skin yellow, thin, hard and warty. Flesh tender and of good quality.

White Bush Scallop. Early, medium size, somewhat flattened with creamy white skin. Flesh milk white, firm and richly flavored.

Herb Seed for Planting

ANISE. Used as a cordial and for garnishing and flavoring. Seeds have an agreeable aromatic taste. **Packet, 10c; ounce, 35c.**

BALM. Leaves are fragrant and are used as a tea for fevers. **Packet 10c; ounce,50c, postpaid.**

BASIL (Sweet). The leaves are used for flavoring soups, stews and highly seasoned dishes. **Packet, 10c; ounce, 50c.**

FENNEL (Sweet). The boiled leaves are used in sauces. **Packet, 10c; ounce, 30c.**

HOREHOUND. Leaves used for seasoning. **Packet, 10c; ounce, 75c.**

HYSSOP. Used as a stimulant and a mild tonic. **Packet, 10c; ounce, 75c.**

BORAGE. The leaves are used for flavoring and the flowers furnish bee pasture. **Packet, 10c; ounce, 50c.**

CARAWAY. Grown for the seeds, which are used extensively for flavoring of bread, pastry, etc. **Packet, 10c; ounce, 25c.**

CATNIP or CATMINT. The leaves are used for seasoning. It also makes an excellent bee pasture. **Packet, 10c; ounce, $1.00.**

CORIANDER. The seeds are used in the manufacture of liquors and confectionery. **Packet, 10c; ounce, 25c.**

DILL SEED. For planting. **Packet, 10c; ounce, 20c; pound, 50c, postpaid.**

MARJORAM (Sweet). The leaves and the ends of the shoots are esteemed for seasoning in summer and are also dried for winter use. **Packet, 10c; ounce, 75c.**

ROSEMARY. The aromatic leaves are used for seasoning. **Packet, 10c; ounce, $1.00.**

RUE. For medicinal purposes. **Packet, 10c; ounce, 50c.**

SAGE. The most extensively used of all herbs as a seasoning for dressing. **Packet, 10c; ounce, 75c.**

SUMMER SAVORY. A hardy annual. The dried stems, leaves and flowers are extensively used for flavoring, particularly in dressings and soups. **Packet, 10c; ounce, 75c.**

THYME. Used for seasoning. **Packet, 10c; ounce, $1.00.**

WORMWOOD. Used medicinally and is beneficial for poultry. **Packet, 10c; ounce, 50c.**

TRUE LAVENDER. Used chiefly in the manufacture of perfumery. **Packet, 10c; ounce, 75c.**

TURNIPS

All Varieties Turnips—Pkt., 5c; oz., 15c; ¼ lb., 25c. Turnip seed sown about the last week in July or early in August will provide a crop when they are most wanted in the late fall and winter. The plant is a biennial and if left in the ground all winter will bloom and set seed the following spring. However, we do not recommend this as the second growth plants are not hardy and many times register a crop failure.

The seeds should be sown in drills about ¾-inch deep and thickly enough so that the plants can be thinned to 5 or 6 inches apart. For hoeing or a wheel cultivator, keep the rows about 15 inches apart.

The plant does best in the loose open loam, and the product is much better if quickly grown. While it is primarily a late fall and winter vegetable, very early varieties have been developed which may be sown as soon as the ground can be worked in the spring. Such can be harvested in the early summer, and should be, because if left in the ground they will go to flower and the roots are then soon useless.

Cultivate as for any other root crop, being careful not to injure young roots with tools. The plant responds to rich soil, but top-dressing with nitrate of soda should be avoided. If necessary, use any well-balanced commercial fertilizer, working it in between the rows about 5 weeks after the seed is planted. The turnip is a cool season crop and does not like hot dry regions.

Purple Top White Globe. Large, globe shaped. Purple on top, white below. Excellent quality and highly recommended for home use as well as field crop. **Packet, 5c.**

Purple Top Strap Leaf. An early variety. Roots medium size, flat. Purple above the ground, white below. Flesh white, firm but tender and may be used for table or stock feeding. **Pkt., 5c.**

Golden Ball. Medium size, round and yellow. Flesh firm, hard and most excellent flavor. Keeps well and a fine table variety. **Packet, 5c.**

Other Varieties: Early Flat White Dutch, Early White Milan, Early Snowball, Early Purple Top Milan, Pomeranian White Globe, White Egg, Yellow Aberdeen, Cow Horn, Bortfield. **Pkt., 5c.**

TOMATOES

All Varieties Tomatoes—Packet, 5c; oz., 35c; ¼ lb., $1.00. The tomato is perhaps more tender than any other garden plant in such general culture. It is blackened by the least touch of frost, and will grow well only where there is sufficient heat. However, while many home gardeners will prefer to buy potted plants at the time they should be planted out, there is little need to do this, for tomatoes are among the easiest of vegetables to raise from seed. In your calculations for the early varieties allow 7 to 8 weeks from the time of sowing seed to the proper date in your locality for setting the plants in the garden.

The seed should be sown in fine, not too rich soil, about ¼-inch deep, either in tiny drills or broadcast as you prefer. Keep the soil moist but not wet. When the seedlings are about 2½ inches high, brick them out and replant on 2x2 inch intervals and allow them to grow until they are 4 or 5 inches high. By this time they are ready for transplanting into the open ground.

Tomatoes need constant cultivation to keep down weeds and conserve soil moisture, upon which they draw heavily. This is especially true in the early stages of the plants allowed to sprawl. Later these cannot be cultivated without injury to the tender, rather brittle stems.

Any good garden soil will grow tomatoes. Experience has shown that too much (especially nitrogenous) fertilizer or manure close to the plants makes them more likely to produce leafage than fruit. If you are prepared to pinch off the excess leaves, they may be fertilized as for any other rich feeding crop.

Bonny Best. Early, hardy and a scarlet fruit variety. Medium sized, solid, smooth and quite round. Very productive with excellent quality. **Packet, 5c.**

Chalk's Early Jewel. Fruits large, bright red, round, smooth, solid and almost seedless. Recommended for market and home gardeners. **Packet, 5c.**

Break O' Day. Wilt resistant. Vines vigorous open growth and very productive. Fruits scarlet medium to large size true globe shape. Slightly earlier than Mariglobe, an excellent variety for the home and market garden. **Packet, 5c; oz., 40c; ¼ lb., $1.40.** Prices postpaid.

John Baer. Brilliant round fruits, high crown, smooth and delicious flavor that is easily peeled. Excellent keeper, yields well and a good shipper. **Packet, 5c.**

Mariglobe. Very resistant to disease. Fruits are large, globe shaped and deep red. Excellent for slicing and canning. **Packet, 5c.**

Prichard. Newest to be introduced by U. S. Department of Agriculture. Strongest disease resisting tomato yet offered. No core, small seed pockets and evenly colored throughout. **Packet, 5c.**

Other Varieties: Dwarf Champion, Burbank, Stone, Golden Queen, Yellow Pear, Yellow Plum and Ground Cherry. **Packet, 5c.**

Agricultural and Field Seed

Grimm Alfalfa. 15 pounds per zcre. The most important member of the variegated group in the United States. Introduced from Germany by Wendelin Grimm.

A very winter hardy, long-lived variety. The tap root shows a tendency to branch and the crowns are low set and spreading. These characteristics contribute much toward its ability to resist extreme cold, alternate freezing, thawing and heaving. Succeeds in most types of soil except those heavily charged with alkali, will not grow in waterlogged soil.

It is very important that all Alfalfa seed be inoculated with Nitragin A.

Cossack Alfalfa. 15 pounds per acre. An introduction from Russia and a hybrid between common and yellow-flowered Alfalfas.

Growth is generally upright with stems medium size, plants are very leafy with fairly large leaves. Flowers are variegated ranging from white and yellow to dark purple.

Rooting system is large with heavy deep penetrating tap root being the rule. A very winter hardy variety adapted for growing under practically the same conditions as Grimm Alfalfa.

Inoculate seed with Nitragin A.

Common Alfalfa. There are various strains of common Alfalfa produced in the United States and are usually distinguished by the name of the state in which grown, such as Idaho, Oregon, Northern California, etc. Common Alfalfa from above named sections is adapted to Oregon and Washington climatic conditions. Common Alfalfa differs from the Grimm Alfalfa mainly in the root system. The tap root in common does not show the tendency to branch and the crowns are not as spreading.

Inoculate all seed with Nitragin A.

Ladak Alfalfa. An introduction from Northern India.

The growth in general is quite upright with stems medium size, plants are very leafy, medium size leaves. Flowers are variegated ranging from whitish and yellow to very dark purple.

The rooting system is extensive, with most plants being tap rooted.

One of its outstanding characteristics is its ability to produce a heavy first crop. It is sometimes referred to as one-cut Alfalfa, mainly for the reason, that under certain conditions its comeback is rather slow. It is very well adapted to conditions where only one crop of forage can be secured a year because of lack of moisture and short growing season.

It is extremely winter hardy, and long-lived and is much more resistant to bacterial wilt than Grimm, Common and other varieties closely related to these.

Inoculate seed with Nitragin A.

Alsike Clover (Trifolium Hybridum). 12 pounds per acre. A long-lived Perennial, adapted to a wider range of both climatic and soil conditions than Red Clover. Thrives well on clay, clay loams, sandy loams and muck soils providing abundant moisture is available. Will survive where soil is waterlogged, making it well adapted to growing under irrigation. An excellent pasture plant and when sown for hay is usually mixed with Red Clover, Timothy or Red Top.

To insure a good stand always inoculate your seed with Nitragin B.

Red Clover (Trifolium Pratense). 15 pounds per acre. Usually classed as a short-lived perennial and is considered the most important of all leguminous forage crops. Requires a well drained soil, does better in clay soils than in loams and better in loams than in sandy soils. Is especially intolerant to waterlogged soils.

Do not fail to inoculate your seed with Nitragin B.

White Dutch Clover (Trifolium Repens). 8 pounds per acre. A long-lived but shallow-rooted perennial. The stems creep on the surface of the ground and root abundantly. On this account the growing point is seldom injured by mowing or grazing. Grows in practically all types of soil provided moisture is abundant, thriving best in loams and clay soils. White Clover is considered to be one of the most important pasture plants, generally used in pasture mixtures and is also used to a large extent in lawn grass mixtures.

Ladino Clover (Trifolium Repens latum). 5 pounds per acre. Also known as Giant White Clover, growing about twice the size of White Dutch Clover. It is a Perennial of medium long life, having a short tap root. The surface stems lie flat on the ground and commonly produce fibrous roots at the joints. Ladino Clover usually makes a growth of 8 to 12 inches in height. Can be grown on rather shallow soils where well supplied with lime, phosphate, humus and moisture. Ladino is not a deep-rooted plant and thrives best on medium heavy type soils where there is constant but not excessive moisture. This is primarily a pasture plant and may be sown alone or with a combination of other grasses.

Mammoth Red Clover (Trifolium Pratense Perenne). 15 pounds per acre. A large variety of red clover more decidedly Perennial than common Red Clover requiring the same climatic and soil conditions. The stems are long, coarse and generally spreading. Mammoth red blooms about 10 days later than common red and grows more slowly after mowing. Its coarse growth makes the hay less relished by stock, however its heavy growth makes it an excellent soiling crop.

Inoculate the seed with Nitragin B.

White Sweet or Bokhara Clover (Melilotus Alba). 20 pounds per acre. A Biennial having a strong tap root, produces numerous leafy stems, growing from 4 to 6 feet in height when firmly established. Grows readily on practically all types of soils. Endures poorly drained soils better than Alsike, used mainly as a pasture plant and for green manure.

Inoculate with Nitragin A.

Crimson Clover (Trifolium Incarnatium). 15 pounds per acre. An annual plant having a strong tap root, shows no very marked soil preferences, succeeding on both sandy and clayey soils as long as they are well drained. From the crown of the root numerous upright stems develop which reach an average height of one or two feet. Has a high nutritive value and can be used for either hay or pasture, valuable for soiling purposes in short rotations, as the green matter produced is heavy, and the roots penetrate deep into the ground.

All seed should be inoculated with Nitragin B.

Yellow Sweet Clover (Melilotus Officinalis). 20 pounds per acre. A biennial having the same habits of growth as the White Sweet, requiring the same soil and climatic conditions. Stems are less leafy and smaller in size. The plant does not grow quite as tall and is about two weeks earlier.

Inoculate with Nitragin A.

Yellow Sweet Clover Annual (Melilotus Indica). 20 pounds per acre. Known as Yellow Blossom sour clover. Not recommended for forage or hay, used most entirely for cover crop. Soil requirements same as other sweet clovers.

Inoculate with Nitragin A.

Brome Grass (Bromus Inermis). 20 pounds per acre. A long-lived Perennial with a creeping root-stock. These are much branched, roots at the joints and produces numerous upright stems. The stems are rather stout from 1 to 4 feet high, and carry many spreading, broad smooth leaves varying from light to dark green. The upright stems produced are scattered, therefore, the plants are not tufted but form loose mats. Brome Grass is adapted to regions of rather low rainfall, endures winter cold remarkably well and no other cultivated Perennial grass has shown a higher degree of drouth resistance. Prefers rich loams and clay loams and has succeeded well in sandy soils.

Buckwheat. 25 pounds per acre. An erect growing Annual which under ordinary conditions attains a height of about 3 feet. Is not exacting as to soils. The rather light, well drained sandy loams seem best suited, however, good crops are produced on infertile, poorly tiled land.

Buckwheat is very sensitive to frost, however, the crop may be grown far toward the north. This is due to the short growing season of the plant amounting from 10 to 12 weeks. Japanese and Silverhull are the most commonly grown in the United States.

Cheat or **Chess** (Bromus Secalinus). A smooth annual grass from 1 to 3 feet tall with flat blades and open drooping panicles, sometimes grown as an annual hay crop, and should be cut when the seed is in the dough stage. Adapted to the same soil conditions as wheat. The plants are similar to those of wheat and formerly the idea was held that cheat was a degenerative or changed form of wheat whence its name.

Crested Wheat Grass (Agropyron Cristatum). 15 pounds per acre. A hardy drouth-resistant Perennial bunch grass having an extensive root system, especially adapted to regions where the temperatures are severe and the moisture supply is limited. The plants have a dense, dark green foliage during the early part of the season, after seeding the plants appear less leafy but the stems are fine and when harvested early makes hay of excellent quality, does well on practically all soils ranging from light sandy loam to heavy clay.

Dwarf Essex Rape. 8 pounds per acre. There are several varieties of rape, however, Dwarf Essex is considered to be the best, in fact is the only one used for pasture and forage crop purposes. Rape is termed as a cool weather plant, therefore is adapted to our cool moist climate here in the Northwest and is not very exacting as to soil requirements.

Rape is used extensively as a pasture plant for sheep, cattle and hogs and is generally sown in the spring when used for such purposes. It may also be used as a catch crop occupying the land for short periods or at times when it is desired to have a crop on the land between two regular season crops.

Lespedeza. 15 pounds per acre. Classed as a summer annual, however, in sections where adapted will usually reseed itself and will thus occupy the land for two or more years. The plants are usually much branched, stems wiry, bearing numerous small leaves, under favorable soil and climatic conditions the plants commonly grow about 12 inches high. Adapted to practically all types of soil if well drained near the surface. Requires a warm growing season and will not withstand frost. Used mainly as a pasture plant.

Meadow Fescue (Festuca Elatior). 20 pounds per acre. A deep-rooted, long-lived Perennial. The stems are 18 to 24 inches high, smooth, rather slender. Most of the leaves are produced by numerous sterile shoots from the root stock. The leaves are dark green, long and broad. Prefers rich moist or even wet soils, does not succeed well in sandy soils. Thrives as well as Orchard grass in shady places. It is better adapted for pastures than for meadows but may be used for both purposes.

Millet. 25 pounds per acre. The millets are rapid-growing annuals used primarily for forage production purposes. Requiring in general the same climatic and soil conditions as Sudan grass.

The plants usually attain a height of 3 to 4 feet. The stems are erect, rather stiff and the leaves are long and broad.

The seed should not be sown until the ground is warm, usually about corn planting time.

Several varieties are used here in the Northwest, the most popular being German or Golden, Early Fortune or Hershey and Japanese, also known as Billion Dollar Grass.

Mesquite (Holcus Lanatus). 20 pounds per acre. This plant is primarily adapted to moist cool climates and under such conditions is not particular as to soil.

The plants form thick, rather high tussocks. The stems are erect, growing from 2 to 3 feet high. The whole plant has a velvety appearance hence the name Velvet Grass is sometimes used. Mesquite should be sown with a mixture of other grasses, as stock does not take to it readily when grown alone.

Orchard Grass (Dactylis Glomerata). 25 pounds per acre. A long-lived Perennial forming dense circular tufts, a typical bunch grass producing no stolons and hence never forms a complete sod. The stems are 2 to 3 feet high and are crowned and surrounded at the base by numerous heavy shoots. The leaves are long, broad and flat, rather soft in texture. Grows in practically all types of soils, being best adapted to clays or clay loams. Succeeds well in shady places and also does quite well where rainfall is rather scanty, starts growth early in the spring.

Pasture Mixtures. 35 pounds per acre. Owing to the fact that so many types of Pasture Mixtures are used, we realize that it would be impossible for us to prepare in advance mixtures that would conform with the requirements of each formula recommended.

Therefore we have confined our efforts to two Pasture Mixtures only, namely UP-LAND and LOW-LAND. In these two mixtures we use only the very best grades of seed carrying a high percentage of Purity and Germination and only those seeds that are adapted to the general soil and climatic conditions throughout the Pacific Northwest and for this reason we feel that either of these two mixtures will meet with the average general requirements.

Reed Canary Grass (Phalaris Arundinacea). 8 pounds per acre. A long-lived rather coarse Perennial grass. The plants are resistant to cold both as seedlings and mature plants. The rapidly spreading short underground stems soon form a dense sod growth, starts early in the spring and continues until late fall. The plants grow from 4 to 6 feet in height. The stems are stout, smooth and seldom lodge. The leaves are broad and nearly 1 foot long.

Reed Canary is especially adapted to swampy or overflow lands of sandy, mucky or peaty nature, makes an excellent pasture plant and may also be used for hay.

Italian Rye Grass (Lolium Multiflorum Lam). 25 pounds per acre. A hardy short-lived grass, usually an annual. When seeded in spring, late summer or early fall, it makes rapid growth, furnishing grazing in remarkably short time. It is tender, very palatable to livestock and has excellent carrying capacity. The plants grow from 2 to 4 feet in height. Since Italian Rye Grass is a heavy seeder, if not kept closely grazed or mowed, many new plants appear from volunteer seeding. Adapted to the same soil and climatic conditions as other rye grasses.

Sudan Grass (Andropogon Sorghum). 25 pounds per acre. A tall annual, growing under favorable conditions to height of 4 to 6 feet. The stems are fine, leafy, perfectly erect, seldom lodging.

The plants stool abundantly and owing to the lack of root stocks never become troublesome as a weed. Sudan is grown primarily for forage production purposes and should not be sown until the soil is warm, usually about corn planting time. Many failures are traced direct to seeding in a cold soil. In general climatic and soil adaptations for Sudan are nearly identical with those of corn.

Tall Meadow Oat Grass (Arrhenatherum Elatius). 30 pounds per acre. A long-lived, deep-rooted Perennial. Strictly a bunch grass growing to a height of 4 to 5 feet. The stems are generally dark green, leafy above the middle. The leaves are long, broad and rather soft in texture, usually a bright green almost yellowish. Can be grown on practically any kind of soil provided it is fairly moist, will not endure wet soils. It is one of the most drouth resistant of the cultivated grasses. Makes a quick start after pasturing and stands pasturing well. One of the first grasses to start in the spring and the last to die in the fall.

Timothy (Phileum Pratense). 15 pounds per acre. A Perennial grass having a very short root stock and therefore grows in more or less compact tuffs. The stems which usually reach a height of from 1 to 4 feet or more are smooth and generally erect. The leaves are generally short compared with the height of the plant. Timothy is adapted to cold, moist or wet lands also heavy clay soils. However, does not thrive on sour soils or impoverished sandy or shallow soils. Although root system is shallow it stands drouth fairly well. It is very resistant to cold.

Poa Bulbosa (Winter Blue Grass). 25 pounds per acre. A perennial, and under suitable conditions forms a perpetual sod, reseeds itself freely, spreading itself both by the bulbs produced beneath the surface of the soil and bulblets on the head. This grass reverses the normal order of growth, being entirely dormant during the entire summer. The plants revive after the first fall rains, producing pasture throughout the late fall, winter and spring. Seed should be sown during the fall.

Soy Beans. 50 pounds per acre. The Soy Bean is a leguminous Annual growing to a height of 10 inches or more depending on soil conditions. The plant is erect and branching, quite leafy and producing numerous pods. The leaves vary in size and color depending on the variety. Soy Beans are a promising emergency leguminous hay crop for various places here in the Northwest.

Soy Beans grow on rather a wide range of soils, are quite drouth resistant, and will stand excess moisture providing the water does not stand for any considerable length of time.

Should be sown about corn planting time, rows about three feet apart and the seed about 3 or 4 inches apart in the row.

All seed should be inoculated with Nitragin "S".

Vetches make excellent feed, either green or as hay, and are also exceedingly useful as cover and green manure crops. They are usually seeded with grain, oats being the favorite for the reason separation is easily made when harvesting vetch for a seed crop.

Common Vetch. The most important annual legume grown in Oregon, used extensively as a green feed crop for spring and summer, also makes an excellent green manure and cover crop. Vetch is best suited to a moist cool climate free from extremes of heat or cold during the growing season. Is adapted to heavy well drained soils. The stems are slender growing from 3 to 5 feet or more in length, semi-erect. The leaves are pinnate, with about seven pairs of leaflets and a terminal tendril. The flowers are violet purple rarely white and are borne in pairs on a very short stalk.

Hungarian Vetch. A fine stemmed annual making a semi-erect growth 2½ to 4 feet in length and somewhat hairy overall. The flowers are brownish white in color and are borne in groups of from two to eight. Hungarian Vetch is quite winter hardy and is adapted to a wide range of soils, lands with poor drainage and lands that are heavy, sour and white will often produce crops of Hungarian Vetch while other crops have failed.

Hairy Vetch, also known as Sand Vetch. The stems are slender, usually growing to an average length of 6 to 8 feet. The leaves are narrow, violet blue borne on long stems in dense one-sided clusters of about 30. Hairy vetch is quite winter hardy rarely winter killing if well established in the fall, adapted to a wide range of soils doing best on sandy or sandy loams but does not succeed in very wet soils.

Austrian Winter Field Peas. A true winter variety. Plants resulting from fall seedings pass through a definite period of winter dormancy before growth begins in the spring. The plants are viny, generally similar to other varieties of field peas under average conditions attain a length of 3 to 4 feet. The blooms are purple. The peas are very hardy, zero temperatures do little damage unless freezing and thawing periods are severe. They are adapted to well drained clay and sandy loams. The Austrian pea is used for all types of forage such as hay, silage, soiling and pasture.

Canadian Field Peas. Quite similar to the Austrian Winter Field Pea. The stems and leaves are somewhat larger and the blooms are white. The variety is not winter hardy, being adapted only to moderate temperatures. They do best on loams or clay loams but will succeed on most types of soil if well drained.

The Canadian Field Pea is used for practically the same purposes as the Austrian in general farming. Both varieties are usually sown with a small grain crop.

Jerusalem Artichokes. The Artichoke is an annual reproduced by tubers somewhat similar to potatoes.

The plants grow from 4 to 12 feet in height, the stalks are medium coarse often heavily branched and very leafy and bear small yellow blossoms on the tips of the upper branches and main stalks.

In general the tubers are rough and vary from the elongated, usually slender to the almost round types, the flesh is white, eyes small and the surface coloring varies from red and blue to white and yellow.

Artichokes are adapted to practically all types of soils except those heavily charged with alkali.

Artichokes are planted like potatoes using the same machinery and following the same general practices. When planting whole tubers use 800 to 1000 pounds depending on the size of the tubers. When cut in pieces use 500 to 800 pounds per acre.

Planting is usually and preferably in the spring during April or early May.

Certified Astoria Bent. This strain of Bent Grass was discovered and developed in the vicinity of Astoria. This is a fine leafed Bent especially adapted to lawns, parks, athletic fields and golf courses. Does well on practically all types of soils. This particular strain of Bent should be used for fine lawns and may also be used in lawn grass mixtures.

Certified Seaside Bent. Discovered and developed in the vicinity of Coquille, Oregon. This is a surface creeping bent. Adapted to putting greens and golf courses, and makes a desirable addition to lawn grass mixtures.

Certified Highland Bent. Discovered and developed in the Willamette Valley and Southern Oregon. A vigorous underground creeper similar in its growing habits and requirements to that of Astoria Bent and is especially adapted to heavy cold soils.

Pacific Bent. This is a grade of Bent that usually consists of a mixture of two or more Bents the bulk being Astoria and is well adapted for lawns and parks and lawn grass mixtures.

FARM SEED PLANTING CHART

CROP	Pounds per Acre	PREFERRED TIME OF SEEDING		PRINCIPAL USES	Height Inches
		West of Cascades	East of Cascades		
ALFALFA	8 to 15	Apr. 1 to June 1	Apr. 15 to June 1	Seed; Hay; Pasture	20 to 30
ARTICHOKES, Jerusalem	500 to 800	Mar. 15 to Apr. 15	Apr. 1 to May 15	Winter succulence; Hog Pasture	72 to 96
BENT GRASSES:					
ASTORIA	7 to 10	Sept. 1 to Nov. 1; Feb. 1 to Apr. 15		Seed; Lawn; Pasture	16 to 24
HIGHLAND	7 to 10	Sept. 1 to Nov. 1; Feb. 1 to Apr. 15		Seed; Lawn; Pasture	10 to 18
SEASIDE	7 to 10	Sept. 1 to Nov. 1; Feb. 1 to Apr. 15		Seed; Lawn; Pasture	12 to 20
BLUEGRASSES:					
KENTUCKY	15 to 25	Sept. 1 to Nov. 1; Feb. 1 to Apr. 15	Mar. 1 to May 1	Seed; Lawn; Pasture	18 to 30
SHADY (Rough-Stalked Meadow)	15 to 25	Sept. 1 to Nov. 1; Feb.1 to Apr. 15		Shady Lawns; Shady Pasture	18 to 24
BROMEGRASS, Smooth	18 to 25		Mar. 15 to May 15	Hay; Pasture	20 to 30
BUCKWHEAT	40 to 50	May 1 to June 15	May 15 to June 15	Seed; Green Manure	24 to 36
CEREALS:					
BARLEY—Winter	75 to 100	Sept. 15 to Oct. 15	Sept. 15 to Oct. 15	Seed; Hay	30 to 40
BARLEY—Spring	75 to 100	Mar. 20 to May 1	Apr. 1 to May 1	Seed; Hay	30 to 40
OATS—Winter	80 to 100	Sept. 15 to Nov. 1		Seed; Hay; Pasture	30 to 60
OATS—Spring	80 to 100	Mar. 1 to May 15	Mar. 15 to May 15	Seed; Hay	30 to 60
RYE—Winter	75 to 100	Sept. 15 to Nov. 1	Sept. 1 to Nov. 15	Seed; Hay; Pasture	36 to 72
RYE—Spring	75 to 100	Mar. 1 to May 1	Feb. 15 to Apr. 15	Seed; Hay; Pasture	36 to 60
WHEAT—Winter	80 to 120	Sept. 15 to Nov. 1	Sept. 1 to Nov. 1	Seed; Hay	36 to 60
WHEAT—Spring	80 to 120	Mar. 15 to May 1	Mar. 15 to May 1	Seed; Hay	36 to 60
CHEAT or CHESS	60 to 75	Sept. 1 to Nov. 1		Seed; Hay	24 to 48
CLOVERS:					
ALSIKE	6 to 8	Feb. 1 to June 1	Apr. 15 to June 1	Seed; Hay	18 to 30
LADINO	6 to 8	Apr. 1 to June 15	Apr. 1 to June 15	Seed; Pasture	10 to 14
WHITE	6 to 8	Apr. 1 to June 15	Apr. 1 to June 15	Seed; Pasture	4 to 8
RED	10 to 15	Feb. 1 to June 1	Apr. 15 to June 1	Seed; Hay; Pasture	20 to 28
MAMMOTH RED	10 to 15	Feb. 1 to June 1	Apr. 15 to June 1	Hay; Pasture	24 to 48
SWEET—Yellow	12 to 15	Apr. 1 to June 1	Apr. 15 to June 1	Hay; Pasture; Green Manure	24 to 48
SWEET—White	12 to 15	Apr. 1 to June 1	Apr. 15 to June 1	Seed; Pasture; Green Manure	48 to 84
CRIMSON	12 to 15	Sept. 10 to Sept. 30		Seed; Green Manure	24 to 48
STRAWBERRY	6 to 8	Apr. 1 to June 1	Apr. 15 to June 1	Alkali Pastures	4 to 8
CORN—Field	8 to 12	May 1 to June 1	May 1 to June 1	Silage; Grain; Green Feed	72 to 96
CRESTED DOGSTAIL	20 to 25	Sept. 1 to Nov. 1; Feb. 1 to Apr. 15		Pasture	10 to 18
CRESTED WHEATGRASS	10 to 12		Mar. 1 to June 1	Seed; Pasture	16 to 30
FESCUES:					
CHEWING'S	20 to 25	Sept. 15 to Oct. 15; Feb. 1 to Apr. 15	Mar. 20 to May 15	Seed; Lawn; Pasture	12 to 20
MEADOW	20 to 25	Sept. 15 to Oct. 15; Feb. 1 to Apr. 15	Mar. 20 to May 15	Hay; Pasture	24 to 36
TALL	20 to 25	Sept. 15 to Oct. 15; Feb. 1 to Apr. 15	Mar. 20 to May 15	Seed; Hay; Pasture	24 to 40
FLAX—Seed	30 to 45	Mar. 15 to Apr. 15	Apr. 15 to May 15	Seed	18 to 30
KALE—1000 Headed	1 to 1½	Mar. 15 to June 15		Winter succulence	20 to 30
MEADOW FOXTAIL	15 to 18	Sept. 15 to Nov. 1; Feb. 1 to Apr. 15	Apr. 15 to June 1	Seed; Pasture	15 to 30
MILLETS:					
FOXTAIL	20 to 25	May 15 to June 15		Hay; Seed	18 to 24
JAPANESE	25 to 35	May 15 to June 15		Pasture; Green Feed	30 to 48
PROSO or HOG	25 to 40	May 15 to June 15		Seed; Green Feed	18 to 36
ORCHARD GRASS	20 to 25	Sept. 1 to Nov. 1; Feb. 1 to Apr. 15	Mar. 1 to May 15	Seed; Hay; Pasture	30 to 42
PEAS—Field:					
WINTER—Austrian	75 to 90	Sept. 15 to Nov. 1	Sept. 10 to Sept. 30; Apr. 1 to May 1	Seed; Hay; Silage	36 to 54
SPRING—Canadian	75 to 100	Mar. 1 to May 1	Apr. 1 to May 1	Seed; Hay; Pasture; Silage	24 to 48
MARROWFAT	90 to 120	Oct. 15 to Nov. 15; Feb. 1 to Mar. 15	Apr. 1 to May 1	Seed; Hay; Pasture; Silage	30 to 48
RAPE	3 to 5	Apr. 15 to May 15		Seed; Pasture	6 to 12
REDTOP	7 to 10	Sept. 15 to Nov. 1; Feb. 1 to Apr. 15	Mar. 1 to May 20	Hay; Pasture	20 to 30
REED CANARY GRASS	6 to 8	Sept. 1 to Sept. 15; Apr. 15 to June 1	Apr. 15 to June 1	Seed; Hay; Pasture	48 to 80
RYE GRASSES:					
DOMESTIC—OREGON	20 to 25	Sept. 15 to Oct. 15		Seed; Hay; Pasture	18 to 36
ITALIAN	20 to 25	Sept. 15 to Oct. 15		Seed; Hay; Pasture	18 to 36
PACEY'S	15 to 20	Sept. 15 to Oct. 15; Feb. 1 to Apr. 1		Lawns; Hay; Pasture	15 to 20
PERENNIAL—English	20 to 25	Sept. 15 to Oct. 15; Feb. 1 to Apr. 1		Seed; Hay; Pasture	15 to 24
SORGHUM	4 to 8	May 10 to June 1	Apr. 10 to June 1	Fodder; Green Feed	48 to 72
SOYBEANS	35 to 60	May 1 to June 1	Apr. 1 to June 1	Seed; Hay; Green Feed	12 to 48
SUDAN GRASS	8 to 30	May 1 to June 15	Apr. 1 to June 1	Hay; Pasture	36 to 80
SUNFLOWER	10 to 15	May 1 to June 1	Apr. 1 to June 1	Silage; Green Feed	72 to 96
Tall Meadow Oat-Grass	20 to 25	Sept. 15 to Nov. 1; Feb. 1 to Apr. 1	Mar. 15 to May 15	Seed; Hay; Pasture	36 to 60
TIMOTHY	8 to 10	Sept. 15 to Nov. 1; Feb. 1 to Apr. 15	Mar. 15 to May 15	Seed; Hay; Pasture	30 to 48
Velvet Grass or Mesquite	15 to 20	Sept. 15 to Nov. 1; Feb. 1 to Apr. 1		Seed; Hay; Pasture	20 to 36
VETCHES:					
COMMON or GRAY	60 to 75	Sept. 15 to Nov. 1; Feb. 15 to Apr. 15	Mar. 15 to May 15	Seed; Silage; Hay; Green Feed	36 to 60
HAIRY or WINTER	30 to 40	Sept. 15 to Nov. 1	Sept. 1 to Nov. 1	Green Manure; Seed; Pasture	36 to 60
HUNGARIAN	60 to 75	Sept. 15 to Nov. 1	Mar. 15 to May 15	Green Manure; Hay; Seed	30 to 40
PURPLE	60 to 80	Sept. 15 to Nov. 1; Mar. 1 to Apr. 15	Mar. 15 to May 15	Seed; Green Manure	24 to 48

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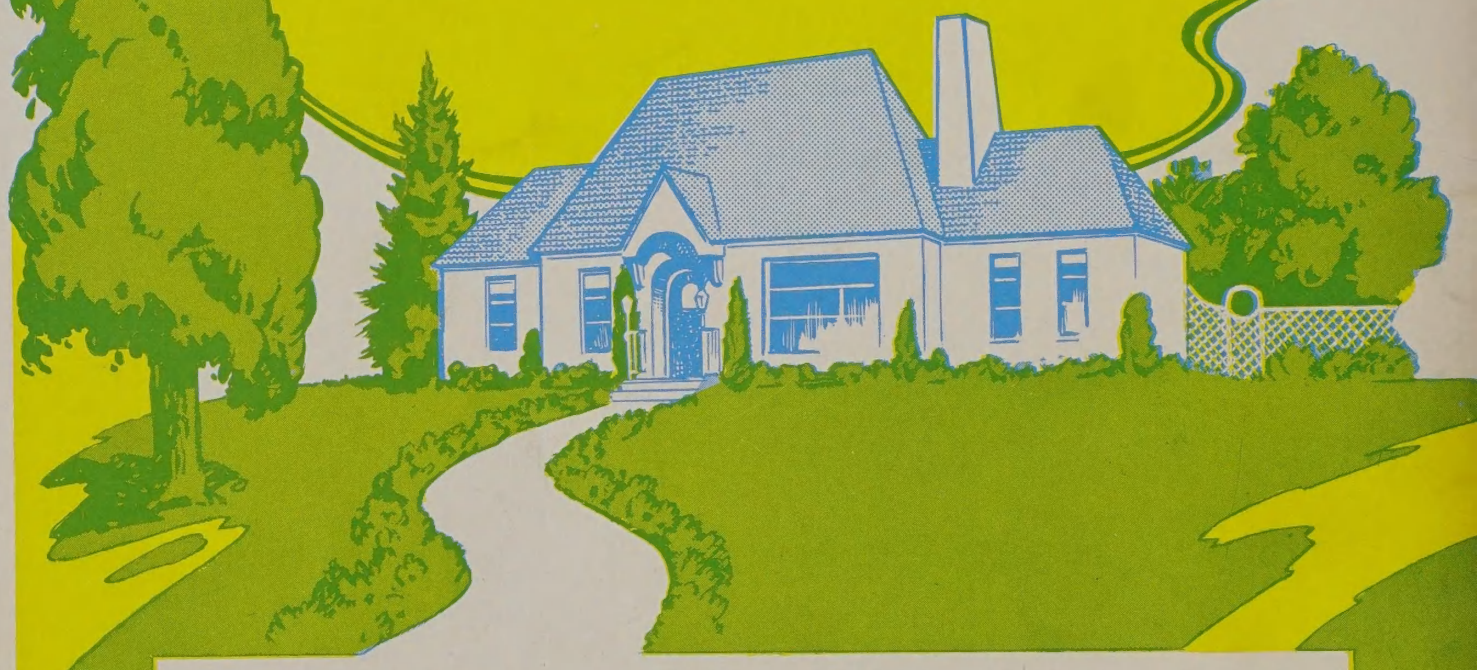

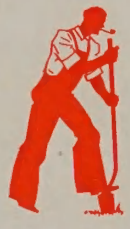

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